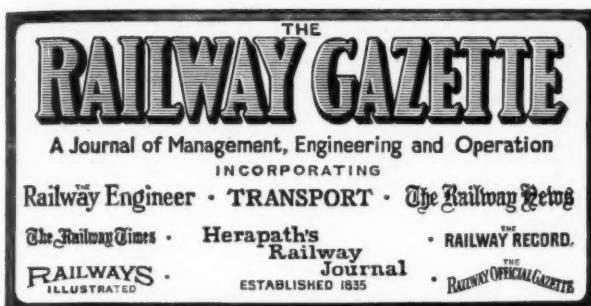


January 2, 1942

THE RAILWAY GAZETTE

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CONTENTS

PAGE	
Editorials	1
Letters to the Editor	5
The Scrap Heap	6
Overseas Railway Affairs	7
A Century of Railway Steamers	8
Locomotive Back-Pressure and Draught Control	13
Indian North-West Frontier Railways—I	17
The Federated Malay States Railways	21
Railway News Section	23
Personal	23
Transport Services and the War	25
Centenary of the Railway Clearing House	29
Stock Market and Table	40

INDEX

An index to the seventy-fifth volume of THE RAILWAY GAZETTE covering the issues from July 4 to December 26, 1941, has been prepared, and is now available free of charge on application to the Publisher

DIESEL RAILWAY TRACTION SUPPLEMENT

The January issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as an indication that they are necessarily available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of existing subscribers who do not renew their subscriptions.

Annual subscriptions are payable in advance and subscribers are advised to pay their renewal accounts before the expiration of the existing subscription, as the despatch of copies will in all cases be stopped on expiration

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
 Mondays to Fridays 9.30 a.m. till 3.45 p.m.
 The office is closed on Saturdays

Greater Calls in the New Year

IN the closing weeks of 1941 the growing pressure of war traffic, due to the ever increasing output of our factories, made necessary a considerable curtailment in railway passenger facilities, notably the reduction of restaurant and sleeping cars. In the final weeks of last year also the extension of war to the Pacific gave promise of still further demands on British internal production and thus on our transport capacity. It is already clear that we must expect some diminution in the programme of material assistance from the United States, now that that country is itself involved directly in the war, and our own factories will have to make good the gap. It is obvious that this will entail a further heavy pressure on the goods carrying capacity of the railways, and that this pressure is more likely to increase than decrease with the passage of the months and the further development of our productive capacity. Our own rapidly expanding needs of the munitions of war and also those of our Russian ally have to be met to a greater proportion than formerly by our own efforts. The task of the railways cannot but be made heavier, though the administrations, aware of the demands likely to be made, are already embarked on new works and the improvement of equipment, which should go far towards offsetting the need for transport restrictions.

■ ■ ■

An Easier Coal Situation

A number of factors, among which must be numbered strenuous efforts by the Mines Department to effect economy in the use of fuel, the high price of domestic coal forcing economy on most householders, mild weather, and comparative freedom from external interruptions, has resulted in an easier coal position at this period than was thought likely a few months ago. There seems to be little doubt that the immediate anxieties of the major public utilities have been assuaged, and for this it is probable that most of the credit should go to the unpublicised but valuable work which is being done at the Board of Trade by Mr. G. S. Szlumper, who for months has been devoting his energies to solving problems of coal transport. Increasing demands by our war factories for fuel must now be expected, and we are about to enter on the two worst months of the year from a climatic and transport viewpoint. It is understood, however, that hopes are still entertained at the Mines Department of avoiding fuel rationing, particularly if a reasonable measure of success attends the appeal for economy.

■ ■ ■

A Check on Christmas Travel

The volume of passenger travel at Christmas was proved by events to be much smaller than had been expected at one time, and in the result the problems of moving the traffic were greatly eased. It will be recalled that when on December 3 the Parliamentary Secretary to the Ministry of War Transport announced in the House of Commons that the Government had decided that on no day of Christmas week would more long-distance passenger trains be run than on an ordinary weekday, and warned potential travellers that if the available trains were overcrowded some persons might be left behind at stations, we expressed the view that it would be better to allow the railways some latitude in dealing with such traffic as presented itself. We still hold the view that this would have been a better course to pursue. No one could have foretold how the public would respond to the warnings, by broadcast and other means, to refrain from travel, but in the event the number of those who made journeys was very much smaller than customary at this season of the year. For this there may have been a number of reasons apart from the steps taken by the Government to deter travel by the general public. The absence of military and civil service leave travel and of visits to evacuees obviously played its part. Furthermore, it must be remembered that a year ago a very large section of the population had endured some nine weeks of heavy air raids, and had looked forward to the Christmas holiday as a means of obtaining a few nights of rest. One effect of the warning against travel at the Christmas period was to induce those who were bent on getting away to travel earlier; for example

the railways reported greater crowds at the previous weekend than on Christmas Eve.

Erie Railroad Reorganisation

This Eastern District road forms a main route between New York (New Jersey) and Chicago, with branches to Buffalo, Cleveland, Dayton, and other points, and it has an open route mileage of 2,266. The company which is now emerging from reorganisation was incorporated in 1895 to succeed to the properties of the New York, Lake Erie & Western. In its early days it was able to meet its fixed charges, although with difficulty. More prosperity came to it in 1923, when in that year and the subsequent years up to 1930 it had surpluses varying from \$2,000,000 to \$10,000,000. After the depression set in the company was forced to borrow from the Reconstruction Finance Corporation as early as 1932, and by December 31, 1938, the total loans from the corporation had reached \$16,000,000. The company went into bankruptcy on January 18, 1938. During bankruptcy several reorganisation plans were proposed. An Interstate Commerce Commission plan was finally approved, reducing the capitalisation from \$490,953,630 to \$332,692,250 and the annual fixed charges from \$14,368,842 to \$11,827,681, including interest on the new 5 per cent. preferred stock. Holders of the common and preferred stocks receive one share of new common for each five shares of the old common or preferred stocks. The Chesapeake & Ohio, which owns 55·68 per cent. of the voting stock of the Erie, receives under the plan less than 10 per cent. of the new common, but can regain control by electing to spend about \$40,000,000 in purchase of the new common.

Centenary of the Railway Clearing House

The 100th birthday of the Railway Clearing House which falls today (January 2) would probably in peacetime have been marked with fitting ceremony as one of the rare occasions when this important organisation, so little known to the general public, would have revealed something of its manifold activities. In war conditions such a course was impracticable, but on Monday last a gathering of 32 guests attended a simple ceremony in the Stephenson Rooms at the Euston Hotel, over which Sir Francis H. Dent, C.V.O., Chairman since June, 1929, of the Railway Clearing House, and also a Director of the Southern Railway, presided. The Railway Clearing House which, like its counterpart the Bankers Clearing House, is a behind-the-scenes organisation, has made possible during the past century the provision of public railway facilities on a nation-wide scale, despite the fact that the lines and their equipment were owned by a multitude of companies. Moreover, the Railway Clearing House has provided neutral ground for railway executive officers to discuss matters connected with railway management, and the effect has been both far-reaching and beneficial. One instance in the past is provided by the part which the Railway Clearing House took in securing the consent of the Government to the adoption of Greenwich time as official throughout the country, to obviate difficulties in operating timetables when every part of the country used its own local solar time. Incidentally, an article on the corresponding arrangements for the adoption of standard time in the U.S.A. is included at pages 14 and 15 this week. A short illustrated account of the development of the Railway Clearing House is given at pages 29 to 32.

American Railways and Air Services

Railway charters and the State laws appear to bar most railways in the United States from engaging directly in air line business, and some of them have been planning such operations through subsidiaries. There has been recently a ruling by the Court of Appeals that such plans must come before the Civil Aeronautics Board for sanction under Section 408 of the Civil Aeronautics Act. This decision seems to oblige the Aeronautics Board to exercise a jurisdiction which it had not previously regarded as given to it. Under Section 408 a railway must prove that it will "use aircraft

to public advantage in its operations." According to the *Wall Street Journal* there is some apprehension that the Aeronautics Board may interpret this section in the sense that the air line operations of a subsidiary must be supplemental to its regular business and cannot be so extensive as to appear an independent business in its own right. Should this be the case it might seriously affect the application now pending before the Aeronautics Board by Seaboard Airways Inc., a wholly-owned subsidiary of the Seaboard Airline Railway. This subsidiary proposes to fly from Boston to Miami, a route longer than the parent railway property. This fact alone might make it difficult to prove that the airline will be only a supplemental part of the railway service.

The St. Clair River Tunnel, C.N.R.

Fifty years ago last autumn the famous international tunnel connecting Ontario (Canada) with Michigan (U.S.A.) under the St. Clair river was formally opened. It now forms an important link in the route followed by the International Limited, which has been running continuously between Montreal, Toronto, and Chicago for the past 41 years. Considered at the time of its inception one of the wonders of the world, this tunnel consists of a circular bore 21 ft. in diameter driven from both ends by shields, and is 6,000 ft. in length, 2,290 ft. of which are under the river. The lining is made up of cast-iron segments 2 in. thick and having 6-in. x 1½-in. flanges; the segments were heated and dipped in tar as a protection against rust. After many years during which trial bores and shafts were sunk and abortive beginnings were made, serious construction began in 1889. Quicksands were encountered and compressed-air working had to be adopted; the entire excavation was by manual labour. As horses could not stand the air pressure, mules were used to remove the muck. In August of that year the headings met. The minimum depth of clay between the river-bed and tunnel crown is 8 ft.; the greatest depth of the river is 40 ft. 6 in. The approach cuttings are 3,192 ft. long on the Canadian and 2,533 ft. on the American side. The construction was carried out by the Grand Trunk Railroad, now a constituent of the Canadian National Railways, at a cost of about £500,000. It was the first international under-water tunnel to be constructed.

Brake Standardisation in Brazil

Both vacuum and compressed air brakes are in use in Brazil, the choice of system having been influenced in many cases by the views of foreign owners and advisers. Of the broad-gauge lines the San Paulo and the Paulista are vacuum lines, and the Central uses compressed air; of the narrow-gauge, the Great Western and the Leopoldina are the most important using the vacuum brake. The Rêde Mineira de Viação had vacuum in its Western area and compressed air in its Southern area, but has changed to vacuum throughout. Some few years ago the authorities began to investigate the question of standardisation and the findings of a committee of the Brazilian Railway Engineering Association have been published in its official journal. A list of questions was circulated to the various railway managements and a number replied to them. It is recommended to standardise on the basis of gauge, all broad-gauge lines—involving conversion on the San Paulo and Paulista Railways—to use compressed air brakes, and all narrow-gauge lines vacuum. This would involve 277 locomotives, 413 coaches, and 7,787 wagons in the former and 778 locomotives, 1,157 coaches, and 8,385 wagons in the latter case.

A Canadian 135-mile C.T.C. Installation

What is believed to be the longest length of line to be controlled by C.T.C. apparatus by one train dispatcher is being equipped in the Atlantic Region of the Canadian National Railways between Pacific Junction, Moncton, and Truro. A preliminary announcement referring to it appeared in our overseas columns on May 2, 1941, page 494. The management had long realised that this 135½ mile section of single line would be subject to severe strain in the event of

war. Additional sidings and loops were provided and, further traffic capacity being called for, doubling was entertained, but considered impracticable in view of the heavy capital cost involved and the fact that the necessary works would take about two years. A C.T.C. installation was therefore decided on. Although there would be little call for one in normal times, the Canadian Government is regarding the work as essential to the war effort. The cost is estimated at \$1,200,000, inclusive of loss on exchange, since the apparatus is being made in the U.S.A., but savings are expected to be sufficient to cover interest and depreciation charges. The next largest C.T.C. installation operated from one point is the 112-mile one, from Denver to Akron, on the Chicago, Burlington & Quincy RR., referred to in our issue of June 10, 1938, page 978.

■■■

Locomotive Draught Control

The device for relieving back pressure and controlling the draught of locomotives described on page 13, and which appears to be giving a good account of itself in America, brings to mind a similar device used, we believe, extensively in earlier days on the Great Western Railway. Many Armstrong locomotives were so equipped, and their performance benefited by the by-passing in certain conditions of a proportion of the exhaust steam direct to the atmosphere. Another device for controlling the draught is the well-known jumper blast pipe cap universal on the Great Western at the present time, and also used to some extent elsewhere. Other forms of variable blast pipe have been employed from time to time in various parts of the world. The American scheme of by-passing a fixed blast pipe nozzle is, so far as we know, new in American locomotive practice, although it is a reversion, with refinements, to the old Great Western scheme. Apart from devices of this kind, and the precise object sought to be obtained by their use, attempts have been made to equalise the draught by dividing the smokebox into two separate compartments each having its own group of boiler tubes leading into it with individual blast orifices and double chimneys. One such arrangement was tried by F. W. Webb on his later L.N.W.R. four-cylinder compounds, and there have been other instances of the same kind. The opinion has been expressed that more uniform draught would be secured if, where dual blastpipes and chimneys are used, they were set across the smokebox instead of tandemwise, the distance between the tube ends and the blast nozzles thus being equalised. This plan has been adopted in certain French colonies.

■■■

Design for Selling

Mr. Raymond Loewy is probably best known to our readers for his work as a designer of the external attributes of locomotives and rolling stock in the U.S.A. In a paper on "Selling Through Design" which he recently submitted to the Royal Society of Arts, and which was read by Mr. John Gloag, Mr. Loewy showed that many other industries now apply to the design consultant in their search for extended markets, and that his own work for railways extends to station and other buildings as well as to the streamlining of expresses. This was a natural development, for having had engines and Pullman cars externally redesigned, the Pennsylvania Railroad commissioned Mr. Loewy to remodel many buildings to match, impelled by a sense of the incongruous which seems less finely developed on this side of the Atlantic, where we have heard our more venerable stations criticised on many counts, but never because they are out of keeping with the trains that pass through them. Design has ample commercial justification. The average patronage of one Pennsylvania service catered for by a new train designed by Mr. Loewy increased within a year by 37 per cent. Increases in rental of from 54 to 800 per cent. have been secured from redesigned premises at the Pennsylvania station, New York. The principle clearly merits the attention of those concerned with schemes of post-war reconstruction.

■■■

Central Uruguay Railway

THE financial year which ended on June 30, 1941, opened very unfavourably. Commercial depression and abnormally wet weather combined to account for a decrease of 12 per cent. in receipts up to that date. Subsequently conditions improved and, assisted by a 10 per cent. increase in tariffs as from October 15, the year closed with an increase in currency receipts of 4·8 per cent. Unfortunately, the rise in expenses resulting from increased costs outstripped the increase in receipts, and the operating surplus was lower by £56,030. With the addition of sundry credits, which included £33,504 Government guarantee and exchange differences of £20,711, total net revenue amounted to £255,535, against £321,475. Deducting interest on the 4½ per cent. debenture stock (£51,750), contribution to renewals (£189,128), and other items, there remains a balance of £12,696 to be carried forward. The sterling value of the Uruguayan peso remained stable during the year. It has not been possible to make any payment on the 5 per cent. second debenture stock. Under the scheme of arrangement of April, 1937, the interest on that stock is payable only out of profits after making provision for renewals.

	1939-40	1940-41
Passengers	5,317,603	5,026,128
Public goods, tons	1,015,310	969,327
Average receipt per ton	10s. 9·49d.	12s. 3·51d.
Train-kilometres	4,636,110	4,000,230
Operating ratio, per cent.	80·39	85·99
	£	£
Passenger receipts	251,109	282,971
Goods receipts	547,819	595,782
Gross receipts	1,142,873	1,254,626
Expenditure	918,762	1,086,745
Net receipts	224,111	160,081

The number of passengers decreased by 5 per cent., but revenue from this source increased by 8 per cent., due mainly to the tariff increases. The same cause explains an increase of 4 per cent. in receipts from goods traffic, although there was a decrease of 3 per cent. in ton-kilometres. Outstanding items of increased expenditure were fuel oil and the charges in respect of railcars hired from the State Railways. Principally due to the extended use of these railcars there was a decrease of 5,367 tons in the consumption of fuel oil on steam locomotives, in spite of which the total costs for fuel oil were approximately £79,000 higher than in 1939-40.

■■■

The Clogher Valley Railway

BY the passing on November 4 of the Clogher Valley Railway & Roads Act (Northern Ireland), 1941, the end of one of the most interesting light railway experiments in the British Isles becomes appreciably nearer. Early in 1937 the Government of Northern Ireland announced its intention to close the Clogher Valley Light Railway, at the same time taking steps to improve the roads in the neighbourhood of the line. So great, however, was the local opposition to the proposal that the railway has so far continued to operate, due largely to the initiative and resource of Mr. D. N. McClure, the General Manager & Engineer. Section 1 of the new Act lays down that the maintenance and working of the railway "shall be discontinued on and after such day as may be appointed by the Minister of Home Affairs." No indication is given in the Act as to the date of the closing, but it may be taken for granted that it will be as soon as circumstances permit.

The Clogher Valley Tramway Co. Ltd. was incorporated on December 3, 1883, under the Tramways & Public Companies (Ireland) Act, 1883, and powers obtained under an Order in Council dated May 26, 1884, were confirmed by the Tramways (Ireland) Provisional Order Confirmation (Clogher Valley) Act of 1884. The railway is of historic interest as having been the first of its kind to be built in Ireland under the above-mentioned Act of 1883. It is 37 miles in length, single line throughout, on the 3-ft. gauge, and runs from Tynan station on the Great Northern Railway in County Armagh, through County Tyrone, to Maguiresbridge, also on the Great Northern, in County Fermanagh. In addition to the two terminals, and six intermediate stations, there are 25 halts. The track was originally laid

with 45-lb. flat-bottom rails spiked direct to the sleepers, but during the past twenty years nearly all the track between Fivemiletown and Tynan (27½ miles) has been relaid with 50-lb. and 55-lb. flat-bottom rails. There are crossing loops at four stations. For some two-thirds of the total route the line runs alongside the public road, and has its own fenced right-of-way through fields, mostly in short lengths, for the remaining one-third. In order to keep the costs of construction to a minimum, cutting and banking were avoided as far as possible, with the result that the ruling gradient of 1 in 30 occurs frequently, and the laying of the track along the roads has made some very sharp curves necessary, of which the sharpest is one of 110-ft. radius outside Caledon. The maximum speeds prescribed by the Board of Trade were 12 m.p.h. on the public road and 25 m.p.h. on the company's own right-of-way. It is believed that the Clogher Valley was the first line to introduce the cattle-guards now so commonly used in light railway construction.

Of an authorised capital of £150,000 in £10 shares, a dividend of 5 per cent. was baronially guaranteed on £132,000, i.e., it was assured by the divisions of counties through which the line passes. In this guarantee the British Government, and later the Government of Northern Ireland, assisted to the extent of 2 per cent., leaving to the tax-payers the remaining 3 per cent., and any losses which might accrue in working. The total of the guaranteed shares actually issued was £123,310. The original name of the Clogher Valley Tramways Co. Ltd. was changed to that of the Clogher Valley Railway Co. Ltd. on July 16, 1894. In 1928 the line was taken over by the County Councils of Tyrone and Fermanagh, and since then has been managed by a committee appointed by the two councils. For a time the railway led a reasonably successful existence, but in recent years it has been seriously affected by road competition. In November, 1932, in an endeavour to reduce working costs, Mr. D. M. McClure introduced the first diesel railcar for passenger traffic. Another diesel unit of equal power was shortly afterwards obtained, chiefly for the haulage of freight stock. Between them, the diesel units work most of the traffic, except on Ballygawley and Fivemiletown fair days, when it is necessary to resort to steam locomotives, of which 5 side-tanks are still in service. In the first eleven months of diesel working locomotive running costs were reduced from £3,531 to £2,248, and traffic costs from £3,122 to £2,621, notwithstanding that passenger-train mileage had been increased from 61,940 to 66,628. On weekdays there are six trains in each direction between Tynan and Fivemiletown, most of them taking 90 min. for the 27½ miles, and two trains between Tynan and Maguiresbridge. One train runs in each direction on Sundays. Notwithstanding the improvements in operation, the Government gave notice in 1937, as already stated, of its wish to have the line closed.

The Act of 1941 provides that as from the appointed day the liability of the guaranteeing areas shall cease to have effect and the joint committee of management be dissolved. A liquidator is to be appointed by the Northern Ireland Minister of Home Affairs, and the property and assets of the undertaking shall, with certain exceptions, be vested in such liquidator. From public roads now used by the railway all rails, sleepers, posts, etc., are to be removed. Any railway land required for road widening is to be vested in the appropriate road authority, but railway land not so required is to "pass to and vest in the person or persons from whom the same was acquired for the purposes of the railway" or their representatives, free of all claims from the two county councils. Section 7 provides for compensation for loss of employment to whole-time staff of the joint committee, who were in its employment for at least two completed years ending on the day preceding the appointed day. A compensation fund is to be established under the control and management of the Ministry of Finance. Section 9 makes provision for the payment of guaranteed dividends by the Tyrone County Council "as if all the guaranteeing areas were situate in that county," and for a Parliamentary grant making good to that council any amounts payable by it, whether under the original Order of 1884 or by virtue of Section 9 of the present Act.

H.E.H. the Nizam's State Railway

In presenting his report for the year ended March 31, 1941, Major Slaughter, General Manager of the Nizam's State Railway, is able to claim records in respect of both gross and net earnings. The former amounted to Rs. 273·6 lakhs, Rs. 20·4 lakhs more than in 1939-40, and working expenses at Rs. 128·13 lakhs were Rs. 3·34 lakhs higher; roughly half of this increase was accounted for by a Rs. 1·52 lakhs higher contribution to the depreciation fund, as a result of increased gross earnings. Despite the greatly enhanced cost of materials, ordinary expenditure—excluding the contribution to the Depreciation Fund and the cost of replacements and renewals on the two Government of India sections—would have actually decreased but for the recent and greatly increased payments to lower paid staff. The percentage of actual working expenses to gross earnings was only 39·7 per cent., a low record for the past 20 years. Including contribution to the depreciation fund the operating ratio was 46·8 per cent., as against 49·3 per cent. in 1939-40. Net earnings at Rs. 145·5 lakhs were no less than Rs. 16·2 lakhs higher than those of the previous record year, 1937-38, and Rs. 17·1 lakhs greater than the figure for 1939-40.

No other Indian railway specialises in road transport as does the Nizam's, and it is not surprising, therefore, that, with its road route-mileage increased from 4,082 to 4,186 miles during the year under review, this branch of the undertaking should have realised record earnings. The gross earnings from road services increased from Rs. 29·6 lakhs in 1939-40 to Rs. 34·9 lakhs, and the net earnings more than doubled the previous year's figure of Rs. 2·3 lakhs, the 1940-41 figure being Rs. 4·8 lakhs. In this railway's latest subsidiary activity, air transport, a deficit of Rs. 1·4 lakhs was registered. On the whole undertaking, rail, road, and air, the surplus after contributing to depreciation was Rs. 141·4 lakhs—as against only Rs. 122·5 lakhs in 1939-40—giving a net return of 9·02 per cent. upon capital. From the financial point of view, therefore, the report is eminently satisfactory and the administration is to be congratulated on its record achievements. Turning to details of traffics, we find the following figures as compared with those of the previous year:—

	1939-40	1940-41
Railway—		
Passengers carried	8,882,828	8,898,930
Passenger receipts (Rs.)	61,30,647	68,10,777
Tonnage carried	3,016,701	3,010,806
Goods receipts (Rs.)	1,74,98,380	1,81,85,496
Receipts per ton-mile (Pies)	7·06 (6·62d.)	7·40 (6·94d.)
Gross train-mile earnings (Pies)	6·63 (6·22d.)	7·28 (6·25d.)
Net train-mile earnings (Pies)	3·36 (3·15d.)	3·87 (3·28d.)
Train-miles	3,817,286	3,757,633
Road Services—		
Passengers carried	11,969,436	13,509,845
Coaching earnings (Rs.)	27,80,134	32,92,254
Tonnage carried	59,765	64,582
Goods receipts (Rs.)	1,53,791	1,70,732
Gross vehicle-mile earnings (Pies)	65·6 (6·15d.)	71·8 (6·73d.)
Net vehicle-mile earnings (Pies)	5·00 (0·47d.)	9·80 (9·19d.)
Total vehicle-miles	8,738,303	9,429,416

The war has greatly increased working and maintenance difficulties, but all departments exercised strict control over revenue expenditure, intensified the conservation of stores, and the salvaging and reconditioning of material of all kinds. Improvisation more than ever before came into its own, and reduction in the use of metals was constantly aimed at.

On the Mudkhed-Adilabad new construction, 93 per cent. of the earthwork and 98 per cent. of the masonry work had been completed by the end of the fiscal year. Permanent way and bridge steelwork can be taken in hand only when materials are obtainable. The levelling and extension of the landing ground at Begampet airport and the installation of lighting equipment were completed during the year. The landing grounds at Adilabad and Aurangabad were also completed and opened for traffic.

Referring to the war activities of the railway, Major Slaughter mentions the completion for the Defence Department of 19,210 gun-carriage components and some 7,000 other items, including gun mountings and vehicle parts; during the month of March nearly 17,000 man-hours were devoted to war work. Many men were trained specially to enable all machines to be worked 24 hr. a day before the end of the year, by which time, also, over 500 men had passed through the nine-weeks' course, instituted by the

railway administration, qualifying them as driver-mechanics for the Indian Army. The railway had also undertaken the recruitment of, construction of barracks for, and technical training of 500 men for an Indian Army Service Company raised by H.E.H. the Nizam's Government. An important R.A.F. training scheme, referred to in greater detail in our Transport Services and the War columns (page 27), was also initiated. Another valuable contribution—also mentioned in those columns—was a weekly news letter descriptive of the progress of the war, 5,000 copies of which are being distributed throughout the Nizam's dominions each week.

Other items of general interest in the report are the inauguration during the year of three diesel railcar services—dealt with in our Diesel Traction Supplement for January; extensive traffic pooling arrangements with neighbouring railways; rail and road co-ordination in consultation with civil officials and including unified control of both services at important fairs; comparisons of various aspects of operating efficiency with those of the average, best, and worst results of other Indian Class I railways; accident statistics; the results of working the Aurangabad hotel; road and air services developments. The two latter we hope to deal with in greater detail in our Road Transport Section in the near future. The hotel income increased by Rs. 21,857 during the year and expenses by only Rs. 9,638, the net profit being Rs. 12,219 up. A noteworthy event was a visit by the Viceroy and Lady Linlithgow and party, who stayed at the hotel.

Locomotive Balance

IT is rare that papers of such universal interest to railway engineers both mechanical and civil are presented as those dealing broadly with the subject of locomotive balancing which we summarised in our last issue, and it was fitting that the Institutions of Civil and Mechanical Engineers should join forces to consider and discuss them. The meeting held for this purpose on December 16 was thoroughly representative and produced an informative discussion which we briefly summarise on page 33. It would not be unfair to say that the importance of the two papers lay more in the attention they drew to a badly neglected subject than in their intrinsic value, considerable as that is. Each paper whets the appetite for further information, and indeed this, to some extent, was forthcoming in the discussion. The paper by Sir Harold Colam and Major Watson produced evidence that, at least in the particular circumstances they were considering, the non-balancing of reciprocating parts brings important advantages so far as permanent way construction and maintenance is concerned, without noticeable disadvantages to the vehicles carried by the permanent way. Although their paper was mainly practical and although as Mr. W. A. Stanier pointed out in the discussion, their methods of re-balancing were a little crude, they have undoubtedly established that, up to normal speeds of about 60 m.p.h., modern locomotives with two outside cylinders can give quite satisfactory performance without reciprocating balance and, therefore, without producing hammer-blow.

Mr. Cox went more deeply into the theory of the subject, as well as stating the practical results so far observed on the L.M.S.R., with which company he is associated. Here again it may be hoped that, when the wartime conditions which have put a stop to further experiments are ended, research may proceed further. So many anomalies at present exist between various locomotives designed for similar service that some of these must be capable of modification to advantage. For example, Mr. Cox, in the illuminating table reproduced on page 642 of our last issue showed that whereas certain 3-cylinder locomotives when running at 8 r.p.m. produced a wheel hammer-blow as high as 7.84 tons, and a total engine hammer-blow as low as 1.56 tons, another 3-cylinder engine at the same speed and of approximately the same power gave hammer-blows of only 3.68 tons and 0.69 tons respectively. It was also revealed that another engine of the same class as the latter example is now running satisfactorily with no reciprocating balance and no hammer-blow.

The wartime limitation of maximum speeds has had a noticeably good effect on rail breakages on certain lines where before the war very high speeds were frequent, and it

is probable that when, in the future, speeds are raised again, a re-balancing of the same engines may prevent a repetition of such unpleasant occurrences. In this connection it may be observed that in German practice, and we believe in that of other Continental countries, it has long been usual to set speed limits for particular classes of locomotive. Such a protection would avoid the trouble to which Mr. W. K. Wallace referred in the discussion of setting on to high-speed work engines which had been designed for only moderate speeds. It is curious, in the light of the wheel-slipping tests with the Class "5" 4-6-0 locomotives, that one of the numerous standard 2-6-4 tank locomotives of the L.M.S.R. has been running with no reciprocating balance for the past eight years without causing any trouble or excessive wear and tear. A possible explanation might be the steady effect of the well-controlled trailing bogie of the tank locomotive, although this particular type of engine is used as much bunker first as chimney first, and the lateral controlling force of the pony-truck is not likely to be so powerful as that of the four-wheel bogie. Undoubtedly important refinements in locomotive design are indicated along the lines of improved balancing and also in the reduction of reciprocating weights.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Steel Coaches in Collision

Hatton House,
Kirknewton,

Midlothian
December 23, 1941

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—With reference to the Inspecting Officer's Report to the Ministry of War Transport on the Holmes Chapel accident summarised in your issue of December 5, I am greatly surprised that the Inspecting Officer made no reference to the steel brake coach other than to say that it was "telescoped and demolished." The overtaking train was running at not more than 35 m.p.h. and the other was running away from it at 5 m.p.h., and yet this smash up resulted. We are not even told if any of the passengers in it were killed or if injured there was any difficulty in removing them; such information would have been most interesting and valuable on the subject of all-steel rolling stock. The demolition of the coach probably prevented any evidence of how the doors behaved being forthcoming. I have always feared that the jamming of the doors would be a serious drawback to all-steel construction.

Yours faithfully,
WM. WHITELAW

Balkan Transport

20, Chalvey Park, Slough, Bucks
December 24, 1941

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—An interesting insight into railway transport conditions in Occupied Europe was afforded a short while ago by a brief news item in the press, to the effect that King Michael of Roumania had arrived in Florence from Bucharest, travelling via the Brenner Pass. As a number of routes much shorter than that, via the Brenner Pass exist, it is interesting to list these routes and their relative mileages, as it appears that none but the Brenner route is at present available for ordinary traffic.

(a) Bucharest—Timisoara—Subotica—Vincovci—Zagreb—Venice—Florence (Simplon Orient Express route), 1,150 miles approx.

(b) Bucharest—Budapest—Pragersko—Ljubljana—Venice—Florence, 1,180 miles approx.

(c) Bucharest—Budapest—Vienna—Maribor—Trieste—Venice—Florence, 1,460 miles approx.

(d) Bucharest—Budapest—Vienna—Tarvisio—Venice—Florence, 1,400 miles approx.

(e) Bucharest—Budapest—Vienna—Linz—Bolzano—Verona—Florence, 1,460 miles approx.

(f) Bucharest—Budapest—Vienna—Innsbruck—Brenner—Verona—Florence, 1,480 miles approx.

It can be assumed that the routes through Jugoslavia are considered as dangerous owing to guerrilla activity, whereas the other routes are probably reserved for military traffic.

Yours faithfully,
KAROL N. GESS

THE SCRAP HEAP

For the first time in 56 years the Southern Railway Orphanage is to adopt babies under five years old.

A POSTERIORI

Officials of the L.N.E.R. were baffled when stamps on passenger train parcels sent from a Tyneside station vanished. They made a profound investigation. And at last the stamps were found fixed on the trousers seats of some workmen. While waiting for a train the men had sat on the parcels. The official report states: "The stamps were recovered from the trousers and were again affixed firmly to the parcels." —From the "Sunday Express."

THE LAST WAR IN THE CRIMEA

Overland route, via Marseilles.—The direct route for officers and others proceeding to Turkey and the Crimea is by the South-Eastern Railway and the Continental Railways in correspondence therewith. The entire journey to Marseilles is performed in forty-four hours, including ten hours' stay in Paris. Officers and soldiers proceeding to the Seat of War on duty are allowed the privilege of travelling over the French lines at half fares. The powerful steamers of the Messageries Impériales Company sail from Marseilles for Constantinople and the Crimea every Monday at Two p.m., and for Constantinople and Varna (via Malta) every Thursday at Ten a.m. For particulars see the South-Eastern Company's Time Books for January.

S. SMILES,
Secretary.

London-bridge, January, 1856.

From "The Illustrated London News" of January 12, 1856.

Truly, the mania some people have for collecting odd things from hotels, restaurants, and railway restaurant cars, etc., may have far-reaching results. I met a friend the other day who told me she had been to an auction recently somewhere down the country. Among many other purchases in the house-linen line, she had invested in two dozen table-napkins.

"Imagine my annoyance," she related, "when I discovered that they were all stamped most obviously by Canadian Pacific Railways, Moser Hotel, and Silver Moon Restaurant, Grand Union Saratoga, etc."

"But," I said, "surely you can make use of them in your own house?"

"Unfortunately, no," she said. "You see, I run a guest house, and my guests might tend to lose confidence in my integrity, in spite of the fact that I cannot lay claim to be at all widely travelled, the only bright aspect of the case being that I did not buy any face towels."

I tried to think of an answer, but there did not seem to be any. I did think, however, of that most unfortunate set of initials on the cutlery of the Goodwill Restaurant—G.W.R.—From the "Irish Times."

A RAILWAY FLOOD

An extraordinary scene was witnessed last week near the Ecclefechan station of the Caledonian Railway. A tremendous rain began to fall about noon, and from that time till after three o'clock there was a downfall like a waterspout. The Caledonian Railway, which there runs between embankments, was soon flooded to a depth of between two or three feet; and the earth became so loose that huge masses were hurled from the embankments into the pool, which had suddenly covered

the rails, bringing down among other debris a great tree which lay athwart the rails. The line was completely blocked, and the approaching trains in each direction had to be stopped. Holes had to be cut in the embankment to let out the water, and in about an hour the rails began to appear, and the line was cleared and the traffic resumed.—From the *Carlisle Examiner* of June 23, 1863.

STATION WITHOUT A RAILWAY

Georgetown, the capital of Penang, the island off the west coast of the Malay Peninsula, has a railway station with a high clock tower, complete with booking office and waiting room, but no railway. Passengers book their tickets for travel in the Malay States and are ferried across to Prai, on the mainland, to join the train.

PROGRESS?

Now that we hear and read so much about post-war freedom of intercourse between nations, a pamphlet issued in 1909 by the South Eastern & Chatham Railways' Managing Committee, setting out the rates and conditions for parcels and similar traffic to the Continent, has a somewhat melancholy interest, for the facilities then offered were far in advance of those in operation from 1919 to 1939. The rate for "mail parcels" via Dover-Calais to Paris (including collection from specified receiving offices, and delivery) was 3s. 7d. for a package of 11-22 lb. (10 kg.), and by *grande vitesse* (Folkestone-Boulogne) 2s. 7d., and parcels handed in at Charing Cross or Cannon Street by 6 p.m. were due in Paris at 12.42 p.m. next day. Comprehensive details are given for the conveyance of traffic via Dover-Ostend for destinations in Germany and Austria-Hungary; weights up to 110 lb. for these countries, and up to 400 lb. for Belgium, were forwarded by the mail steamers, and the principal towns are tabulated in six zones. Charges (for 22 lb.) varied from 3s. 4d. to places in Zone 1 (Aachen, Cologne, etc.) to 4s. 10d. to Zone 4 (Berlin) and 5s. 10d. to Zone 6 (Memel, the Russian frontier, etc.). A similar zone arrangement is applied to destinations in Switzerland (via Ostend and Germany) at 5s. 7d. rate for 22 lb., and charges are also quoted for Alsace-Lorraine, Italy, Scandinavia, etc., and for European Russia (also via Ostend), where the call for the most distant zone (Baku, etc.) is 14s. 3d. for 22 lb. Another detailed list of rates appears for traffic via Queenboro' and Flushing, for mail

parcels, *grande vitesse*, and for perishables between London and a number of Dutch towns; the Rotterdam rate, for example, is 6s. 3d. per 100 kg., and a note states that traffic consigned at this rate, if handed in at Holborn Viaduct by 5.30 p.m., will be delivered to consignees "early after arrival the following day."

A new feature has been adopted by the London & South-Western Railway, in conjunction with Messrs. Thomas Cook & Son, in arranging circular excursions, including a thirty miles' drive through the charming scenery of the New Forest. Passengers will leave Waterloo by special express train at nine a.m., and return to London at 7.36 p.m. These trips will run on Thursdays, commencing on June 29, the return fare (first-class only), including rail, coach drive, and luncheon, being 20s.—From "The Weekly Dispatch," of June 25, 1899.

It takes 54 yards of cloth to re-line a first class carriage. (From Mr. Maddock, April 9, 1869).—An extract from "The Fact Book," which has been kept by the Divisional Engineer, Plymouth, G.W.R., and his predecessors for nearly a century.



A plate from "De Re Metallica," by Georgius Agricola, published in 1556, showing a German mining scene with a railway and wagon bringing ore from the mine to the working sieves

[Reproduced by courtesy of "The P.D. Review"]

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

RHODESIA

Union - Rhodesia - Belgian Congo Conference

Reference was made on page 7 of THE RAILWAY GAZETTE of July 4, 1941, to the then proposed conference to be held in Bulawayo to discuss railway traffic between the Belgian Congo and Rhodesia and the Union of South Africa. This conference was postponed for various reasons, and actually took place at Victoria Falls during the week beginning August 8. Among those attending it were Colonel the Hon. E. L. Guest, O.B.E., M.P., Minister of Mines & Public Works, Southern Rhodesia, M. Devisscher, General Manager of L'Otraco, representing the Belgian Congo Government, Sir Henry Chapman, C.B.E., Director, and Mr. W. J. K. Skillicorn, General Manager of the Rhodesia Railways, Mr. C. M. Hoffe, General Manager of the South African Railways, M. Costier, General Manager of the Chemin de Fer du Bas Congo au Katanga, M. Marissiaux, Director of the Chemin de Fer du Congo Supérieur aux Grands Lacs Africains, Mr. E. P. Smith, Secretary, Department of Commerce & Industry, Union of South Africa, and Mr. R. L. Hardy, Secretary, Department of Mines & Public Works, Southern Rhodesia.

Consideration was given to the development of railway traffic between the three territories by reduced rates and other means and it is stated that the conference served a very useful purpose.

No General Rates Reductions during the War

The Railways Amendment Bill, 1941, which has recently been passed by the Southern Rhodesia Parliament is a measure designed to safeguard the railway position for the duration of the war and the post-war period, when, it is expected, there will be a diminution of traffic. The main features of the Bill, which amends the 1935 Railway Act, are (a) that there shall be no general reduction of rates during the war period, (b) that the dividend provision be reduced from £150,000 to £125,000, (c) that any deficits in any year's working shall be made good first from the reserve provision, then from the dividend provision, and finally from the rates stabilisation account, (d) that the rates stabilisation account be built up beyond the £500,000 maximum under existing legislation, and (e) that any surplus shall go primarily to building up the Reserve Account to two-and-a-half times the loan provision, and then all surplus shall go to the rates stabilisation account. This Act is a war measure and it expires on September 30 following the date of the end of the war, or on September 30, 1943, whichever date is the earlier and it provides for the accounts for 1940 being dealt with in terms of the Act.

In recent years the operations of the Rhodesia Railways have earned a substantial surplus each year and rates reductions were made in 1938 on export copper from the Northern Rhodesia mines, and on coal from Wankie to the copper mines, in order to secure the extension of the contracts for the conveyance of the traffic of these copper mines over the Rhodesia Railways. Also in 1939 the general percentage increases in rates and fares made in 1932 were removed. Substantial surpluses of revenue have accrued, and at September 30, 1940, the amount in the

reserve account was equal to two-and-a-half times the loan provision, so that any surplus over and above the standard revenue now goes to the rates stabilisation account.

It is stated that although the railways have been earning large surpluses during the last two years, such surpluses have been largely due to fortuitous conditions on account of the war, having accrued mainly from military and Air Force traffic and increased base mineral production required for war purposes. The cessation or diminution of such traffics at the end of the war will undoubtedly react to the detriment of railway revenue, and the new legislation is a wise step to tide over the immediate post-war period without the need for drastic alterations to tariffs.

Train Service Improvements

The December timetables of the Rhodesia Railways brought several improvements to the passenger train services, of which the introduction of a fast train from Ndola to Bulawayo, leaving Ndola on Thursdays at 9 p.m. and reaching Bulawayo on Saturdays at 8.15 a.m. was the most welcome. This train replaced the slow train which left Ndola at 9.55 p.m. on Wednesdays and reached Bulawayo at 6.30 a.m. on Saturdays. The thrice-weekly mail train service from the north to Bulawayo now runs to the same fast schedule, which will be much appreciated by the increasing number of passengers from the Belgian Congo and further north. Increased traffic between Salisbury and Bulawayo has led to a welcome acceleration to the local train which left Salisbury at 7.20 p.m. on four nights a week and arrived at Bulawayo at 11.40 a.m. on the next mornings. This train now leaves at 6.30 p.m. and reaches Bulawayo at 8.20 a.m. On the other three nights the mail train from Beira provides the service from Salisbury at 6.30 p.m. but arrives at Bulawayo at 7.0 a.m. On these three nights, owing to heavier traffic, a separate train now conveys passengers from Gwelo to Bulawayo arriving at 6.30 a.m.

SPAIN

Traffic Position

The coal shortage is proving a serious handicap to railway traffic, and, moreover, the available coal is of poor quality, so that speeds are reduced and time-keeping is bad. To this must be added the serious shortage of lubricants. The services had to be reduced by about one-fourth and all ordinary fast trains have been discontinued. There is only one day and one night express each way on the Madrid-Barcelona line and these cover the 685 km. (425 miles) in about 15 hr.

These restrictions of passenger traffic assist in maintaining unrestricted (apart from speed reductions) most of the goods traffic, but even in this connection various limitations have been introduced. Wagon users, for instance, have to obtain the consent of the trade syndicate to which they belong before being allowed to ask for wagons to be placed at their disposal, and the applications must be put forward by the syndicates themselves. In certain cases wagons have been made available only if the users were prepared to undertake the repair of a number of wagons. This was the case with the Orange Producers Association, which was able to secure the number of wagons required for the disposal of its members' orange crops

in the past season only after having agreed to repair the wagons required.

To secure the quick turn-round of wagons and thus relieve the shortage of stock to a certain extent, measures have been decreed by which the unloading of wagons must in principle take place on the day of their arrival at destination. Demurrage charged for the first day is 50 pesetas, for two days 150 pesetas, and for three days 200 pesetas.

ROUMANIA

Constanza Harbour Traffic

According to the recent Roumanian statistics, railway traffic in respect of Constanza maritime trade, expressed in ten-tonne-wagons, totalled 8,026 vehicles in the first three months of 1940, but dropped to 3,208 vehicles for the same period of 1941. According to the same source, the British flag occupied pride of place in Constanza maritime traffic during the first six months of 1940, with 19 vessels totalling 56,403 gross tons. No British ship entered Constanza Harbour during the same period of 1941, nor any Dutch, Greek, Norwegian, Jugoslav, or Egyptian vessel. Soviet merchant vessels, which were absent from Constanza in the first half of 1940, numbered 15 (totalling 37,941 gross tons) during the same period of 1941. Roumanian vessels increased from 13 (aggregating 40,087 gross tons) in 1940 to 27 (aggregating 180,655 gross tons) in the first half of 1941, and thus occupied first place due to the fact that Roumanian shipping is unable to leave the Black Sea and must concentrate on Constanza. German vessels increased from nil to 10, totalling 11,104 gross tons, in the first six months of 1941.

SWITZERLAND

Train Operating Numbers

A new system of train numbering has been brought into force throughout the Federal Railways network, the previous system having been found inadequate to cope with the considerable increase in train movements, which made it necessary to use the same numbers, with the suffix "a" or "b," for more than one train. Each group of numbers is much larger than previously. Express trains (except the *trains-de-luxe*, which, as hitherto, are indicated by letters), *trains directs*, and *trains accélérés*—that is, all the fast and semi-fast trains—carry 1 to 600; stopping trains (known as *trains omnibus* and *tramways*), 1001 to 5000; fast and through freight trains are numbered 601 to 960; and all other freight trains 5001 to 9000. Trains run for service purposes, such as empty stock, permanent way, material, and breakdown trains, and snow-ploughs, are numbered between 1 and 300 with the prefixes L, U, or M, according to their nature. Special passenger trains run from 9001 to 9900, special freight trains from 10,001 to 11,000, and special service trains, with the prefixes as before, from 301 to 600. The new classification is simpler than the previous one, and though the memorising of this complete change in train-numbering throughout the Federal Railways system is bound to be difficult it is regarded as both justifiable and necessary.

UNITED STATES

Empire State Express Jubilee

To celebrate the jubilee of its Empire State Express, the New York Central is inaugurating new streamline trains. This train is the most profitable day service on the system.

A CENTURY OF RAILWAY STEAMERS

A brief review of the inauguration of railway ownership and the development of the distinctive cross-channel design

By FRANK C. BOWEN

ALTHOUGH railway ownership of steamers began in 1841, no great progress was made until twenty years later. The railways have, however, exercised great influence on the development of the design of the smaller types of ship and have been responsible for the construction of many remarkable vessels.

Railway ownership began simultaneously on the Thames and the Clyde. On the London River the Blackwall Railway from the Minories to Blackwall—worked by means of a cable and capstans—opened in August, 1840. The following year the company chartered the steamer *Courier* and built the steamers *Blackwall*, *Brunswick*, and *Railway* for the "Long Ferry" to Gravesend at that time a popular resort which the railway had not yet reached. These steamers were in competition with the private steamers already linking with the railway on the Kentish bank which had been opened to Greenwich in 1838, but the railway steamers were ahead of any others on the river. With a tonnage of 258 on dimensions of 146 ft. by 19 ft. by 5 ft. 3 in. draught, they had the lightest of hulls, but their engines were 80 N.H.P. and the *Railway* was for some years the fastest steamer on the Thames with her speed of 16 land miles an hour.

In the same year the Glasgow, Paisley & Greenock Railway was opened and bought the steamers *Maid of Bute* and *Isle of Bute*, little vessels of rather more than 90 tons burthen with engines of 65 N.H.P. which had been built in 1835 and which the railway ran in association with J. & G. Burns.

In 1844 the railway built the iron steamers *Pilot*, 70 tons, for the Kilmun service, and for the Rothesay run they built the *Pioneer* (104 tons, 95 N.H.P.) in 1844 and the *Petrel* (100 tons) in 1845. These ships started keen competition with the existing owners, but the railway company soon found them unprofitable and made an agreement with its rivals for through bookings and for the sailings to be timed on the trains.

After that there was a lull, but the railway companies running down to the coasts soon realised that they had made a mistake in not including steamer ownership in their Parliamentary Bills.

Most of them found it to their advantage to come to an agreement with contractors or to form subsidiary companies. The first railway company to obtain the necessary Parliamentary powers was the Chester & Holyhead Company, which secured a special Act in 1848, after a contracting company had lasted for a very short time, and which started operations with the *Anglia* (1847, 473 tons), *Cambria* (1848, 759 tons), *Hibernia* (1847, 627 tons), and *Scotia* (1847, 700 tons), smart 15-knot ships, carrying passengers only, which were transferred to the City of Dublin Steam Packet Company in 1851. The railway service between Fleetwood and Ireland was much later, established in 1843 by the North Lancashire Steam Navigation Company, it was taken over by the Lancashire & Yorkshire and London & North Western Railway Companies in 1874 under an Act of 1870.

Competition was naturally much keener on the services across the English Channel to France and Belgium. When the South Eastern Railway reached Folkestone in 1843 it came to an agreement with the New Commercial Steam Packet Company, which already maintained a service, but this was of short duration. Two years later the South Eastern & Continental Company was founded by directors and shareholders of the South Eastern, to run services from Folkestone to Boulogne, Calais, and Ostend. It was inaugurated with the steamers *Princess Maud* and *Princess Mary*.

Provision was made for Dover services when the railway should be extended to that town, but by that time the South Eastern directors were convinced that Folkestone, whose harbour they had bought, could maintain a monopoly

and when the Admiralty terminated the mail contract with Jenkins & Churchward they declined the offer to take it over. The London, Chatham & Dover Railway accepted it in 1862.

In similar fashion the London, Brighton & South Coast Railway first had an agreement with the General Steam Navigation Company. They quarrelled in 1847 and the Brighton & Continental Steam Packet Company was registered. The legality of this ownership was contested by the South Eastern Railway and the steamers *Brighton*, *Newhaven*, and *Dieppe*, which had been running on the Newhaven service, were withdrawn and sold. Mr. Maples then took over the contract by agreement, but his first service, maintained by obsolete Clyde steamers, was bitterly criticised. Later he put such ships as the *Alexandra*, *Lyons*, and *Orleans* on the route with a great improvement. The South Western Railway Company formed a South Western Steam Packet Company in 1845 for the Southampton-Havre service, and soon covered the Channel Islands route. The *South Western*, of 1846, and the *Courier*, *Despatch*, and *Express*, of 1847, were well known on the route, and later the 475-ton *Southampton*, a 13-knotter built in 1860, was regarded as almost an ideal packet.

In 1847 it had been recommended to the Government that whenever a railway went to a port it should have the power to provide, out of its capital, a certain number of steamers, but rival commercial interests and other railways obstructed this policy whenever possible. In 1859 an Act permitted the transfer of Chester & Holyhead steamers to the London & North Western Railway, which changed the Irish terminal from Kingstown to North Wall, Dublin. In 1861 the Carrickfergus & Larne Railway and the Portpatrick Railway became interested in the short sea route between Larne and Stranraer, with the little steamers *Briton* and *Heroine*, but they soon came to an agreement with a private company which lasted until 1890. In 1862 the London & South Western Railway bought out the Steam Packet Company. In 1863 an enabling Act was passed, of which advantage was taken by the Great Eastern Railway, with the *Zealous*, *Rotterdam*, and *Harwich* for the Harwich-Rotterdam service, and the Manchester, Sheffield & Lincolnshire Railway, later Great Central, to take over the fleet of the Anglo-French Steamship Company for the Grimsby-Hamburg run. The Brighton Railway did not initiate its own fleet until 1867.

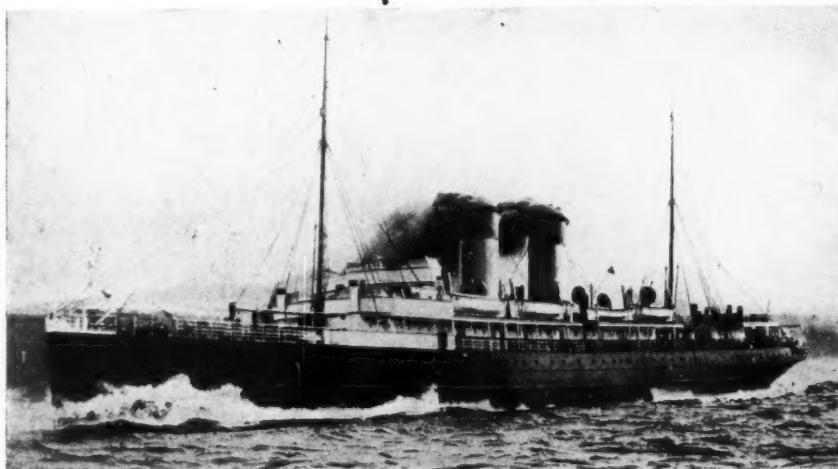
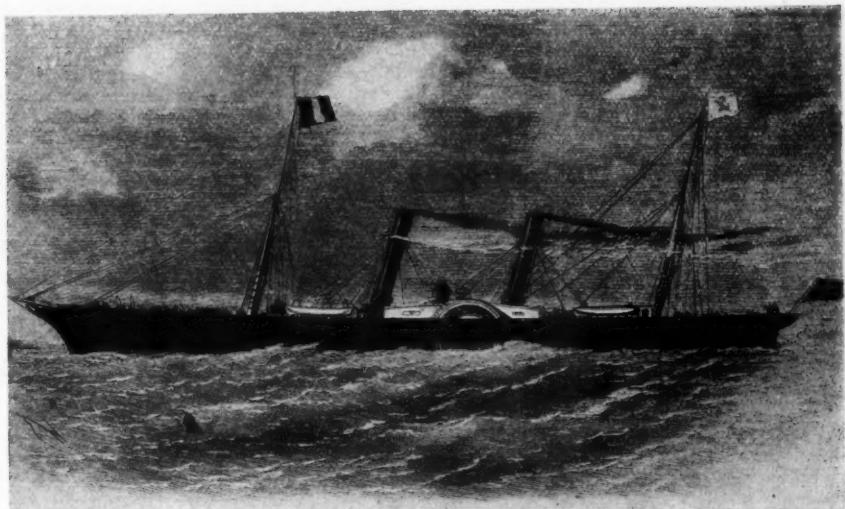
Generally, the railway companies improved the standard of the ships immediately, but a common fault was that they made the lines too fine, reducing the speed in any sort of a sea. There seemed little interest in evolving really economical engines. The Great Eastern steamer *Avalon*, with her gross tonnage of 670 and speed of 14 knots, introduced the straight stem to packet steamers in place of the universal clipper.

The London, Chatham & Dover Railway took over Churchward's fleet for the time being, but improved it with the *Maid of Kent* and *Samphire*, the South Eastern retaliating with the *Albert Edward*. The London & South Western *Normandy*, of 1863, 600 tons, 15½ knots, was a particularly fine vessel which was, unhappily, sunk in collision with heavy loss of life.

Cargo services were generally a secondary consideration on the competitive routes, but the first Brighton steamers in 1847 had a certain amount of hold space, and when the Great Eastern Railway began it provided for both parcels cargo and cattle in its own and chartered steamers. Other companies followed suit, either with combined or specially designed ships, on both coasts, and made a speciality of the foodstuffs trades, both alive and dead.

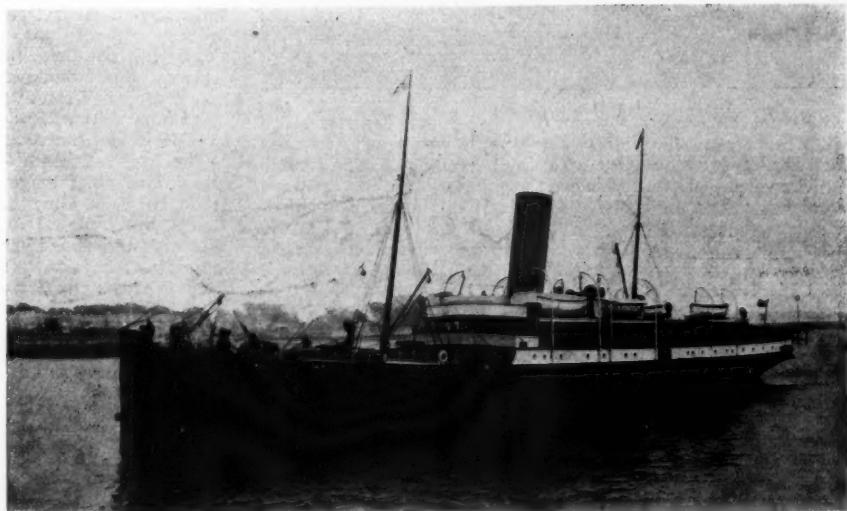
Many of the well-known passenger packets were relegated to the cargo services in their later days, generally when

The London, Chatham & Dover "Prince Imperial" of 1864, 321 tons gross, which was renamed "Prince" to avoid hurting French susceptibilities after the fall of the second Empire



The London & North Western Railway steamer "Scotia" served as an armed merchant cruiser from the beginning of the war until the summer of 1917 and then as a transport until well after the Armistice

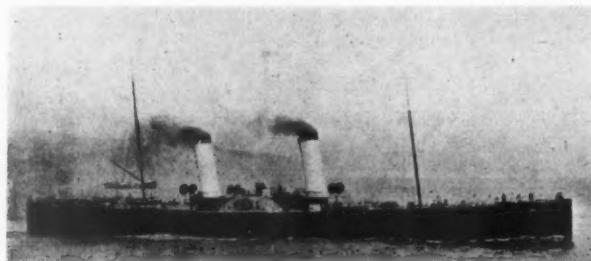
The London & South Western Railway's "Lydia" of 1890, one of the fine twin-screw ships built for the Southampton services in the 'nineties



January 2, 1942

their speed had dropped below the competitive standard. Some of them retained their old paddle propulsion while others were converted into screw or twin-screw ships. The Great Eastern Railway, having good water, was among the first to do this, while the London & North Western *Duchess of Sutherland*, *Edith*, and other ships, as well as many from other companies, underwent the same conversion.

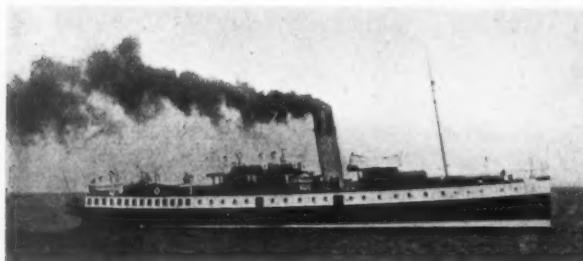
Between the early 'sixties and the end of the century the paddle steamers were vastly improved in size, speed, and efficiency; they were obviously inferior to the screw but many of the Continental ports were in poor condition and



Above : The London, Chatham & Dover "Calais-Douvre," 1,212 tons, one of the big double-ended paddlers which preceded the turbines

Right : The Great Central Railway's turbine steamer "Immingham" of 1906, afterwards converted to triple-expansion engines with reduced speed for the needs of the service

Below : The "Atalanta" of 1905, the first turbine railway steamer on the Clyde and designed to test the "Lusitania" design

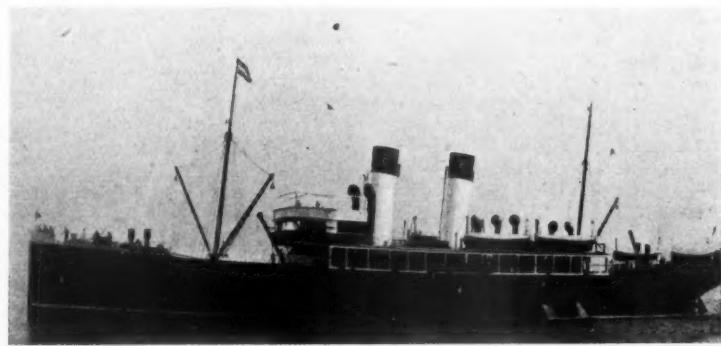


could not offer enough water for well-designed screw ships at all states of the tide. The specially-designed blockade runners during the American Civil War had considerable influence on packet design in the 'sixties, but the railways soon worked on their own principles. The London & North Western worked the design up to the *Banshee*, of 1884 (1,250 tons, 19 knots), before the paddle was abandoned. The Great Western Railway started with the *Milford*, *Waterford*, and *Limerick* for the Channel Islands service in 1874, but abandoned the paddle with the *Pembroke*, of 1880. The London, Brighton & South Coast built several fine ships for the Newhaven-Dieppe service, the *Paris*, of 1875 (483 tons, 13 knots), being the pioneer of the new type of Channel steamer and very popular. Over 1,000 tons gross, with speeds of 18, 19, and finally 20 knots and over, became quite usual, especially on the French routes, where there was such keen competition.

In the meantime more screw and twin-screw passenger ships were being built for the routes whose water would permit them. The first was the ex-steam yacht *Griffin*, bought by the London & South Western Railway in 1865 for

the Channel Islands and then for the Cherbourg service, and that company's routes had a steady succession from the mid-'seventies onward—*Diana*, *Ella*, *Hilda*, *Frederica*, *Lydia*, *Stella*, *Columbia*, *Alma*, *Vera*, *Alberta*, and others. The Great Eastern Railway built the twin-screw 14-knot *Ipswich* and *Norwich* in 1883 and improved them through the *Cambridge*, *Colchester*, *Chelmsford*, *Berlin*, *Amsterdam*, and *Vienna*, to the 1,805-ton *Dresden*, of 1897. The Great Western Railway entered the Weymouth-Channel Island service in 1889 with the *Lynx*, *Antelope*, and *Gazelle*, improved through the *Ibex* to the *Roeback* and *Reindeer*, of 1897, ships of 1,186 tons, 5,300 I.H.P. and a speed of 20 knots. The Greenore service of the London & North Western Railway turned to screw with the *Rosstrevor* and *Connemara*, of 1895, shortly after the Midland Railway came to an agreement with Little & Co., of Barrow. The Lancashire & Yorkshire and Great Central Railways had a more moderate speed but built some very useful and sizeable ships.

Between the 'eighties and the outbreak of war in 1914 many of the railways built some smart little cargo steamers, well under 1,000 tons gross, and some of them with limited passenger accommodation. The component parts of the South Eastern & Chatham Railway and the London,



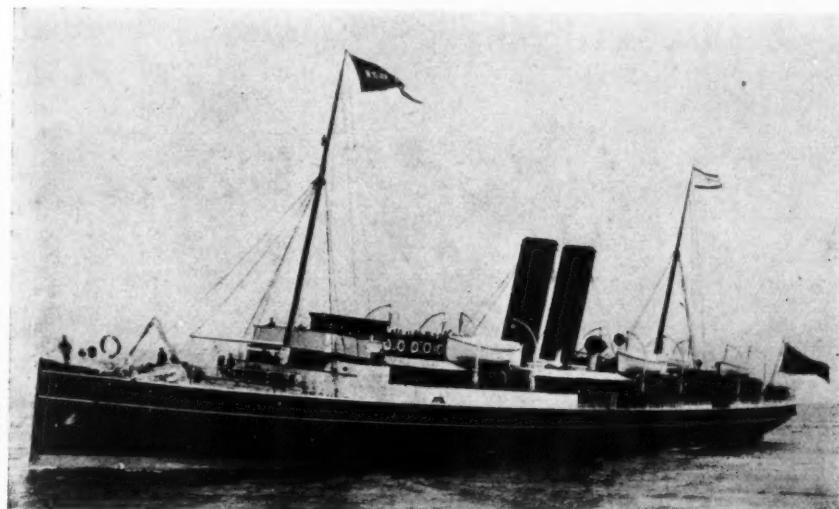
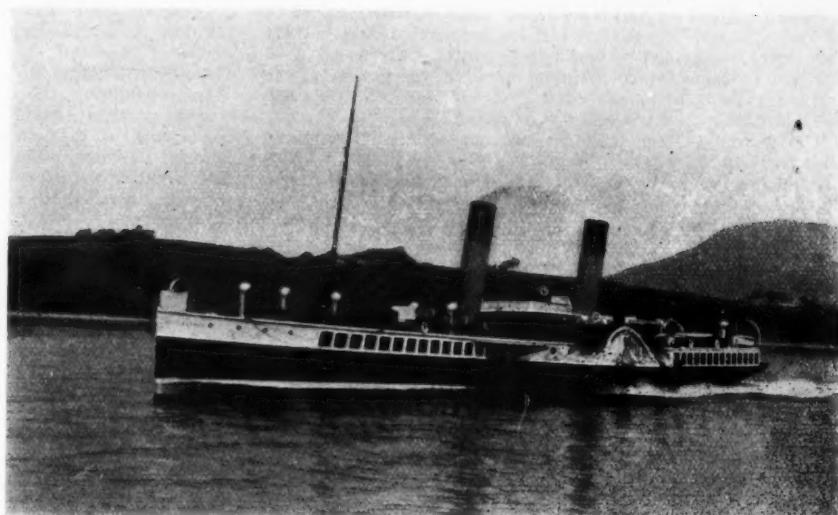
Brighton & South Coast were conspicuous in these, while the cattle trade across the Irish Sea was well covered.

There were many minor railway services started in the middle of the nineteenth century, of which the Clyde services were the most conspicuous. The Caledonian Railway, North British Railway, and Glasgow & South Western Railway were the great competitors, especially after the early 'nineties when, with their private allies, they had the finest collection of river steamers in Europe, and maintained the keenest competition on many routes. These were practically all paddlers, their size and speed suited to their services, and among the most conspicuous was the Glasgow & South Western's *Glen Sannox*, of 1892, a remarkably handsome ship with a gross tonnage of 610 and a speed of over 19 knots, but a terrible coal eater.

The North British Railway, and its component parts, also maintained steamers on the Forth where there was a big trade between Burntisland and Granton before the Forth Bridge was built. To the Isle of Wight the London & South Western and London, Brighton & South Coast Railways maintained a joint service; the Great Eastern Railway had a ferry across the Thames at Woolwich for many years; the South Eastern Railway, before it amalgamated with the London, Chatham & Dover, built the pretty little *Myleta* and *Edward William* for the Queenborough-Sheerness service, and these were afterwards used for excursions round the Kentish resorts.

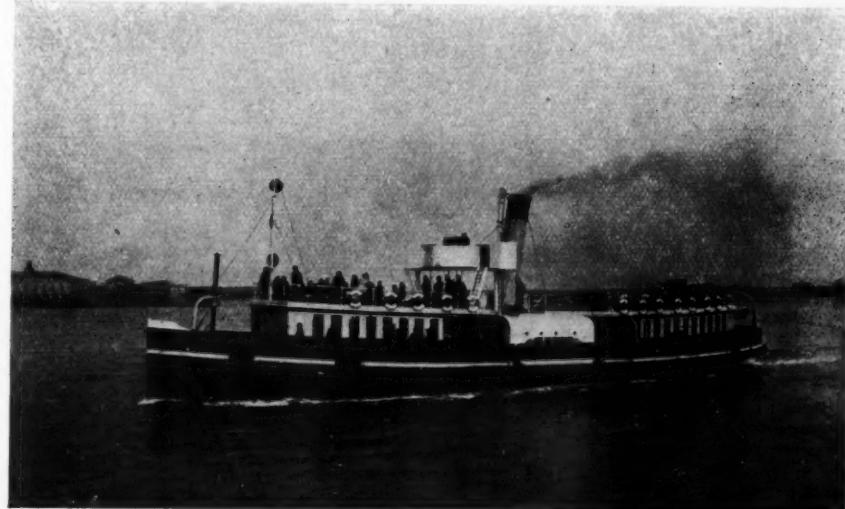
The coming of the turbine steamer *The Queen*, built for the South Eastern & Chatham Railway in 1903, with a gross tonnage of 1,676 and a speed of 20½ knots, revolutionised the cross-channel packets. The example of the company was immediately followed by the London, Brighton & South Coast, the Midland for the Irish Sea service, the Great Western Railway, and others. The Great Central built the

The Glasgow & South Western Railway's Clyde steamer "Glen Sannox" of 1892, reckoned to be the finest river paddler of the period



The Great Western Railway's "Reindeer" of 1897, a twin-screw ship built for the improved Channel Islands service

The London Midland & Scottish ferry steamer "Rose" of 1900 on the Tilbury - Gravesend ferry service

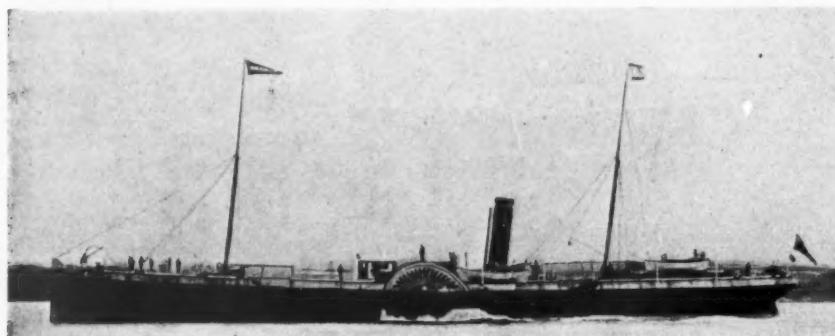


turbine *Immingham* and *Marylebone* in 1906, with a speed of 18 knots, but they were too fast for the service, and in 1911 they were re-engined with triple expansions for a speed of 13½ knots. The railway steamers on the Clyde first tried the turbine with the *Duchess of Argyll* and *Atalanta*, of 1906, the latter built as a trial for the *Lusitania*.

The geared turbine with its superior economies came in with the London & South Western *Normannia* and *Hantonia*, 20-knotters, in 1911, followed by the London, Brighton & South Coast *Paris*, 25 knots, in 1913.

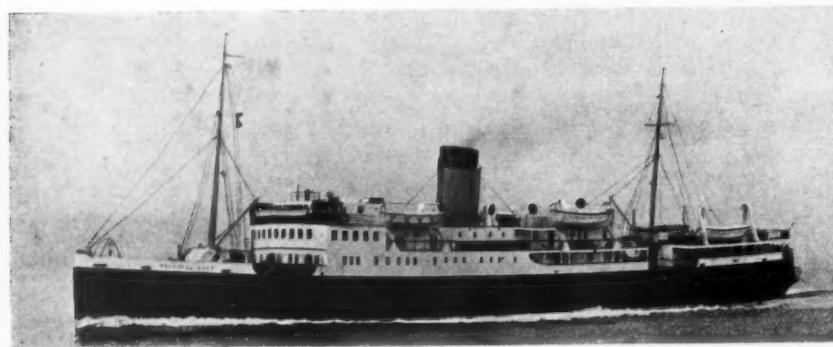
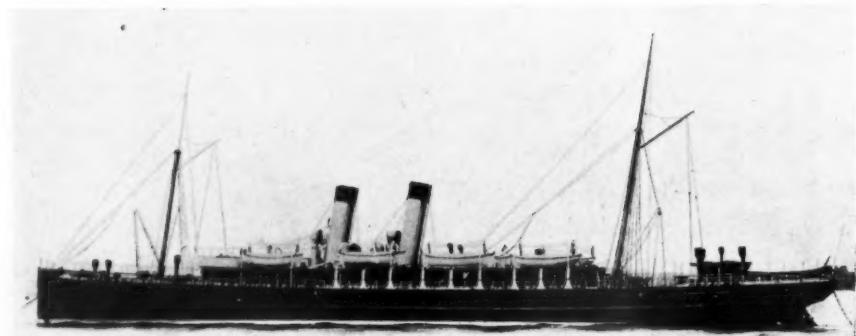
interesting one is the diesel-electric *Talisman*, built for the London & North Eastern Railway (North British) Clyde service. The Clyde has also been given a number of turbine ships by the railways.

In considering the railway companies' fleets, the train ferries must not be forgotten. The first in the world, the *Leviathan*, of 1849, was built for the Edinburgh, Perth & Dundee Railway to maintain the service between Burntisland and Granton. An iron paddler of 417 tons, she worked hard for many years both on the Forth and on the Tay. After



The Great Western Railway's "Waterford" of 1874, one of the big paddlers of its early Irish service

The Great Eastern Railway steamer "Berlin," built in 1894 for the Hook of Holland service



The London Midland & Scottish Railway "Princess Maud" of 1934, the last steamer built for the Larne-Stranraer service before the company turned to diesel-engined vessels

The London Midland & Scottish Railway took the gross tonnage up to nearly 3,500 with the 25-knot *Cambria* class, while improved harbours permitted a considerable increase in the size of the Southern Railway ships, whose accommodation was made more roomy by the adoption of the single funnel. The Larne-Stranraer service built interesting ships, including the *Princess Maud*, of 1934 (2,918 tons, 21 knots), with Erith-Roe mechanical stokers, and the motorship *Princess Victoria* (2,197 tons, 19 knots), of 1939. The standard of cargo steamers was also greatly improved, the tonnage of many exceeding the 1,000 mark.

Numbers of interesting paddle steamers have also been built for the subsidiary services on the Clyde and Solent, many of the former having their paddles so hidden in their passenger decks that they look like turbines. A particularly

the last war the train ferries built for the Army's Richborough service were purchased by a subsidiary of the London & North Eastern Railway to run between Harwich and Zeebrugge, and in 1934 the Southern Railway brought out the noteworthy *Hampton Ferry*, *Shepperton Ferry*, and *Twickenham Ferry*; the last was transferred to the French flag. These vessels were geared-turbine ships designed to carry passenger trains between Dover and Dunkerque, with a gross tonnage of 2,839, a speed of 16½ knots, and very interesting machinery.

The work that the railway companies' fleets are doing in the present war is still, of course, very largely confidential, but the despatches concerning Dunkerque and other operations show that the story will be a very interesting one when it comes to be told.

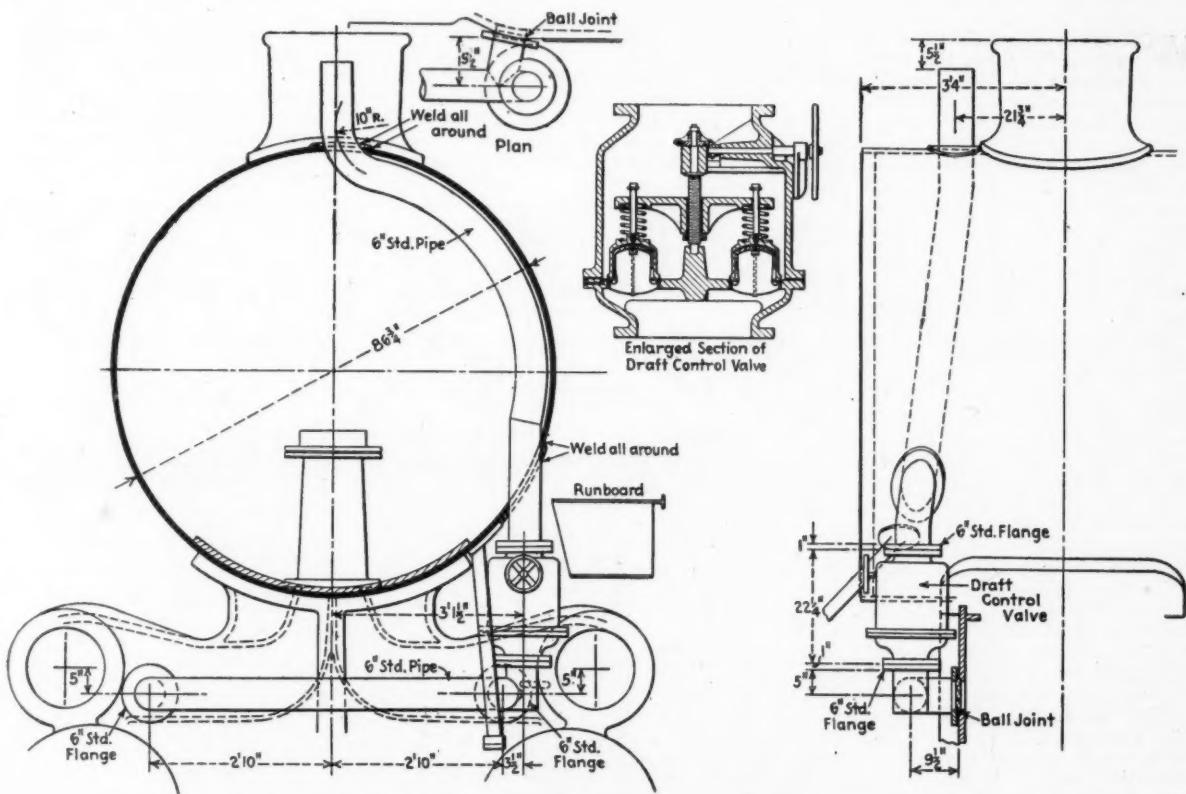
LOCOMOTIVE BACK-PRESSURE AND DRAUGHT CONTROL

Successful results have been obtained on the Lehigh Valley Railroad of the U.S.A. by the use of an automatic device for controlling the draught and reducing the back pressure on modern locomotives

DURING the past three years the Lehigh Valley Railroad has been conducting experiments with a device for automatically controlling the draught of locomotives and reducing back pressure on the pistons. The arrangement of the mechanism is as illustrated on this page and as seen it is mounted at the front end on the left of the smokebox. It consists essentially of an automatic adjustable control valve in a 6 in. pipe leading direct from the exhaust passage to the atmosphere and so bypassing the blast pipe. This automatic valve incorporates a nest of steam-cushioned multi-ported spring-opposed valves which open at a pre-

reduced by one half of the increase above 5 lb. so that the reduction figure would be 12 lb. instead of 18 lb.

The tests made with the 4-8-4 type engines gave some interesting results. There was, for instance, a decided drop in the amount of coal fired per hour when the draught control was used. In one test, when a run of 87·3 miles was made with a train weighing 3,116 (short) tons, the total fuel burned amounted to 18,564 lb., as compared with 24,262 lb. with a train of 3,196 tons when the automatic draught control was not used. The comparative figures for total water evaporation were respectively 123,300 lb. and 139,700 lb.



Arrangement of back pressure and draught control fittings for locomotives

determined pressure and remain open under all pressure conditions at or above that point. The action of this group of valves effects a reduction of back pressure on a graduated scale, and the excess drifts to the atmosphere. This valve is responsive to exhaust steam pressures and because of a retarded action feature it does not register exhaust impulses.

Among the Lehigh Valley locomotives fitted with the arrangement are some of the 4-8-4 type, and the draught control valves used on these begin to open at a back pressure of from 5 to 6 lb. per sq. in. The valve remains open at this pressure, and the opening is increased at higher exhaust pressure so that there is some augmentation of back pressure as the volume of exhaust steam increases. This notwithstanding, the exhaust steam or back pressure above the predetermined amount of 5 or 6 lb. is reduced by about 50 per cent. For example, a back pressure of 18 lb. could be

giving an evaporation of 6·68 lb. with, and 5·76 lb. without the device. The air openings in the grates on the same basis were 30 per cent. and 19 per cent., and the figures relating to coal burned per 1,000 gross (short) ton-miles were 68·40 lb. with the control in use and 87·16 lb. without it.

Although in normal running conditions the automatic valve retains about 5 to 6 lb. back pressure, at very high speeds and full throttle opening there is a build-up to a maximum of 12 lb. Thus the draught is automatically increased when conditions demand an increase in the firing rate. In 43-mile test runs the average back pressure was 17·97 lb. when the draught control was not used, and only 7·13 lb. with the draught control operating. This decrease of 10·84 lb. in the back pressure is responsible for an important increase in cylinder horsepower.

When modern locomotives are working fast and heavy

trains, the amount of coal burned per sq. ft. of grate area per hr. is large, and demands strong draught. As such locomotives must be designed so as to provide sufficient draught at low speeds, they are over-draughted at the higher speeds. During periods of over-draught fine coal is drawn out through the tubes and chimney, and the fire bed is violently disturbed, causing a waste of fuel. The automatic draught control effectively corrects these conditions, and certain of the tests have shown as high as 25.57 per cent. saving in fuel, together with the practical elimination of smoke and cinders.

The automatic draught control device is produced by the Locomotive Combustion Controls Corporation of the U.S.A.

which states that it was designed (1) to effect a reduction in the fuel burned for an equal amount of work performed, (2) to eliminate chimney losses and damage to tubes, super-heater units and other boiler parts by the abrasive action of cinders, (3) to improve combustion by maintaining a more uniform draught and the use of larger grate air openings, and (4) to reduce smoke throughout the operating range. The success achieved may be indicated by the fact that the first locomotive on the Lehigh Valley Railroad was equipped in May, 1938, and there are now some 60 engines carrying the draught control fitting, and giving important economies as a result.

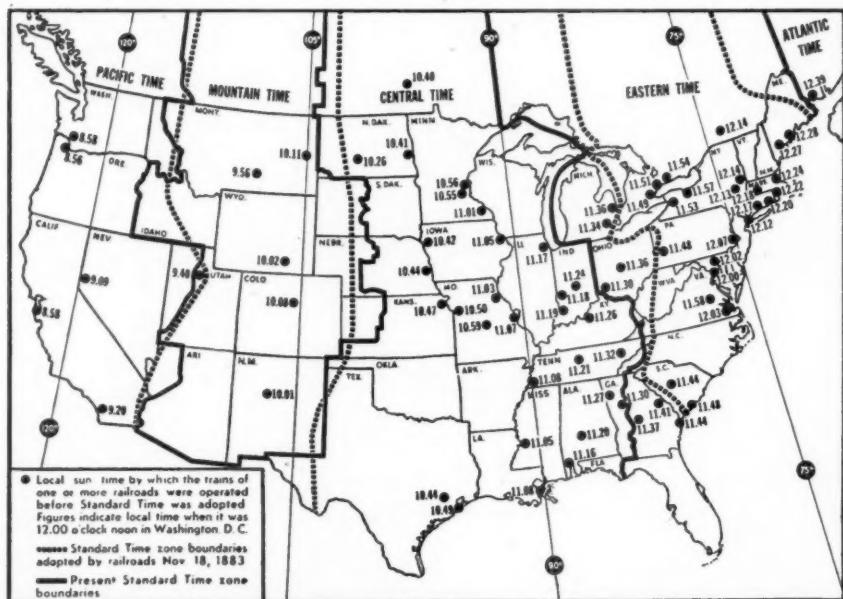
STANDARD TIME IN THE U.S.A.

*Railway arrangements in 1883 divided the country into time zones.
Federal legislation on the subject came 35 years afterwards*

MORE than once within recent years we have commented editorially upon the fact that standard zone time, without which it would be difficult to envisage modern commerce, was introduced as a result of railway activity, both in Great Britain and also on the North American continent. In the U.S.A. and Canada the arrangement was widely adopted by the commercial communities immediately after the railways had taken steps to standardise their own operations, but in the U.S.A. it was not until 35 years afterwards that the matter was the subject of Federal legislation. Recently the question of standard railway time in the U.S.A. was dealt with authoritatively in an address entitled "The Day of Two Noons," delivered by Mr. C. J. Corliss, Manager, Public Section, Association of American Railroads, which was given at the annual meeting of local watch inspectors of the Ball Railroad Time Service at Chicago on August 26. He selected the title of his paper because the phenomenon of a day with two noons occurred on Sunday, November 18, 1883—the day on which standard time, sponsored by the railways, was adopted throughout the United States and in many parts of Canada.

With the possible exception of the change from the Julian calendar in the seventeenth century, no other time reform in all history was of greater significance than the adoption of standard time. Prior to November 18, 1883, the only "time" was local or solar time, which varied in the latitude of Chicago one minute for every 1,140 ft. of longitude. Numerous towns adopted a time standard which was based upon mean local sun time at the city hall or some other designated location. Many other towns adopted the time standard of one of its railways or of the principal city in its area. Each railway adopted the time standard of its home city or of some other important city on its lines. For instance, the Pennsylvania Railroad in the east used Philadelphia time, which was 5 min. slower than New York time and 5 min. faster than Baltimore time. The Baltimore & Ohio Railroad used Baltimore time for trains running out of Baltimore; Columbus time for trains in Ohio; Vincennes time for trains running west of Cincinnati; and

scheduled some of its trains under New York time, Philadelphia time, and Chicago time. The Michigan Central Railroad operated its trains on Detroit time. In the Chicago district, the New York Central Railroad (then the Lake Shore), and the Pennsylvania Railroad (then the Panhandle), used Columbus time, which was 6 min. faster than Cincinnati time and 19 min. faster than Chicago time.



different "local times" there were in the entire country prior to the adoption of standard time, but there were at least 68 different times used by the railways, and, according to one authority, there were something like one hundred different times in use by the U.S.A. railways a few years prior to 1883.

Proposals for a uniform time system were not new. As early as 1828, Sir John Herschel mentioned the value of standard time. On December 6, 1848, Greenwich mean time became the standard time of England, Scotland, and Wales. One of the early advocates of standardisation in the U.S.A. was Professor C. F. Dowd of Saratoga, N.Y., who in 1869 proposed dividing the country into time zones, somewhat similar to those in operation today. The railway movement may be said to have had its beginning on May 14, 1872, when the association which eventually became the Association of American Railroads held its first meeting at the old Southern Hotel in St. Louis. This was a meeting of railway superintendents to arrange a summer passenger train schedule. At the St. Louis meeting was formed the permanent organisation which became successively the Time-table Convention, the General Time Convention, the American Railway Association, and finally the Association of American Railroads. For many years the Secretary of the General Time Convention and the American Railway Association was Mr. William F. Allen, Managing Editor of the *Official Guide*, and in his capacity as Secretary of the General Time Convention he worked untiringly for the adoption of standard time. In the waiting room of the Union station, Washington, there is a large bronze tablet which gives him credit for his part in that very important achievement. The General Time Convention of October 11, 1883, held in the once famous old Grand Pacific Hotel in Chicago, definitely adopted standard time.

The plan which was there adopted provided for five time zones—one to be known as Intercolonial Time, in the Eastern provinces of Canada, and four in the United States, to be

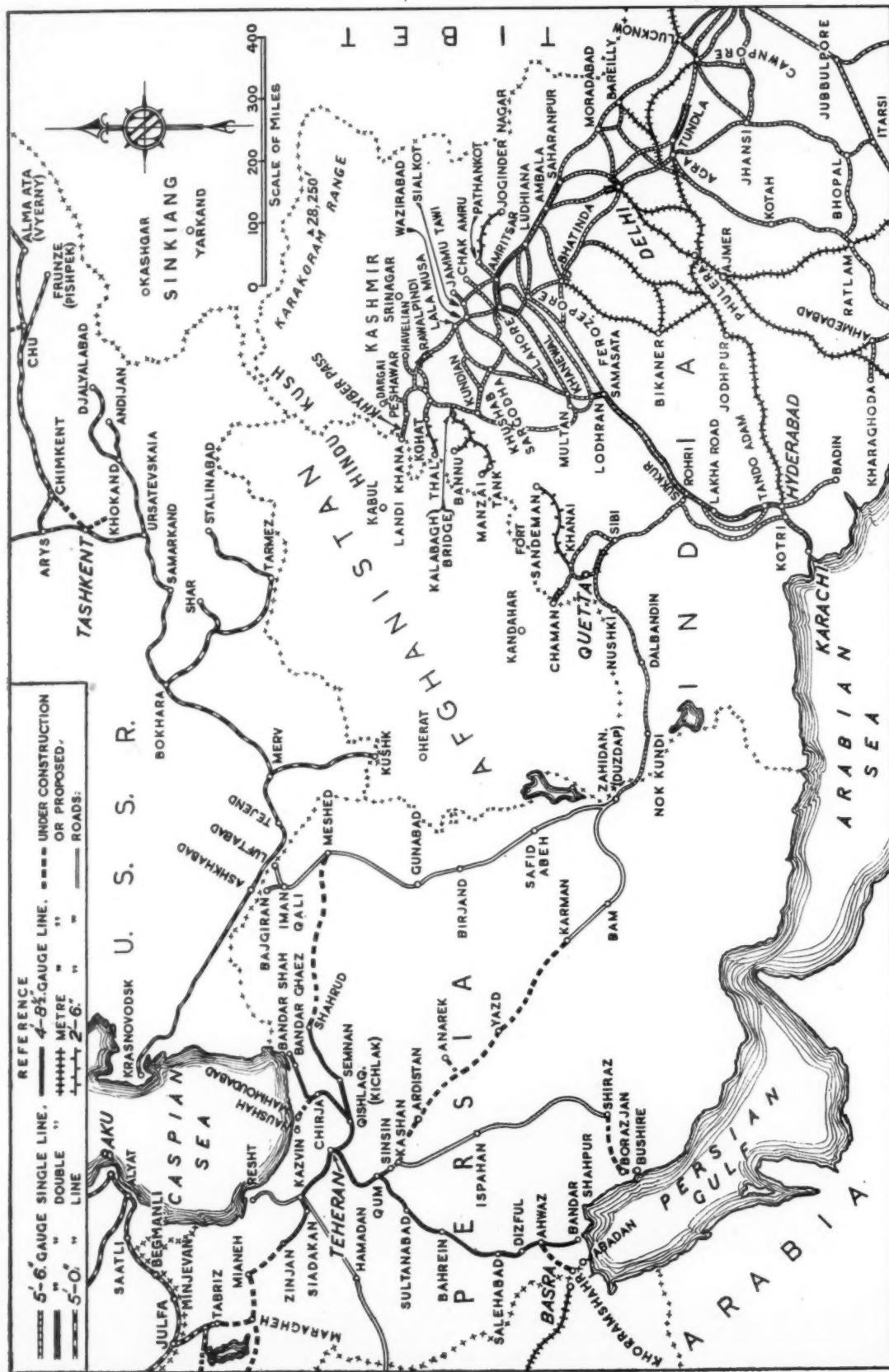
known as Eastern, Central, Mountain, and Pacific times. The four United States zones were based upon mean solar time on the 75th, 90th, 105th, and 120th meridians west of Greenwich. These four meridians are approximately on the longitudes of Philadelphia, Memphis, Denver, and Fresno. The convention issued a notice directing that all railway clocks governing the operation of trains throughout the United States should be set to the new standard at exactly 12 o'clock noon on Sunday, November 18, 1883. Detailed instructions and recommendations were issued giving the exact changes which were necessary for the various railway companies to adjust their clocks and watches to the new standard, and similar information was furnished various cities. It was realised that the success of the plan would depend largely upon the co-operation of cities and towns in adopting the new time locally, and this was stressed by the General Time Convention and by railway publications. Newspapers and local public officials enthusiastically approved the change, and only here and there was there serious opposition to it.

The American people soon came to accept standard time without question, and today it is in almost universal use. This method of reckoning time instituted by the railways in 1883, although adopted and used by the Federal Government and the states, cities, and towns throughout the country, was put into effect without Federal legislation of any sort. It was not until 35 years later—on March 19, 1918, during the World War—that Congress passed what is known as the Standard Time Act. This gave the sanction of the Federal Government to the four-zone system adopted by the railways and provided for "daylight saving" to conserve fuel. The Interstate Commerce Commission was empowered to define by order the boundaries of each standard time zone, and since then has made several important changes in the boundaries of time zones. One of the latest is the transfer of Michigan proper and western Ohio from the Central zone to the Eastern zone.

Poona Mail Picking up its Tablet



Madras & Southern Mahratta Railway metre-gauge Poona mail leaving Hubli, headed by Indian standard 4-6-2 type "YC" class locomotive. In the foreground is one of the traffic staff holding the line-clear tablet or token with a cane hoop attached for the engine crew to pick up (on a hooked arm)



RAILWAYS (AND GAUGES) OF THE INDIAN NORTH-WEST FRONTIER AND ADJACENT TERRITORIES

(See article opposite)

INDIAN NORTH WEST FRONTIER RAILWAYS—I

Some notes on the Sind—Quetta—Chaman group of broad-gauge lines

(See map opposite, and illustrations on pages 18 to 20)

THE two main routes by which an enemy in possession of the Trans-Caspian and Turk-Sib railways in the U.S.S.R. might be expected to approach India, are (1) via Kandahar, Chaman, and Quetta, and (2) via Kabul and the Khyber pass. Kabul and Kandahar are the two principal cities of Afghanistan, the former about 120 miles as the crow flies from Landi Khana, the Khyber railhead, and the latter some 70 miles from Chaman the Afghan-Baluch frontier railhead. A third but less likely route would be through Persia, Zahidan (Duzdab), Nushki, and Quetta. These three lines of approach are met by 5 ft. 6 in. gauge railways connecting with the vast Indian railway system. There are numerous subsidiary strategic frontier railways leading towards more difficult lines of approach, and all but the Nowshera—Dargai section are of 2 ft. 6 in. gauge. The Quetta—Nushki—Zahidan railway was briefly described in our issue of October 3 last, and it is with the broad-gauge lines guarding the main approaches (1) and (2) that the present notes are intended mainly to deal.

The Quetta-Chaman Group of Railways

The railways serving Quetta and Chaman are first considered as they were constructed many years before the Khyber pass line. This group consists of (a) a broad-gauge single line from Rohri junction—on the main (double) Karachi-Lahore section of the Indian North Western Railway—through Sukkur and Ruk junction—where connection is made with an alternative (and the original) route from Karachi via the right bank of the Indus—to Sibi, at the foot of the Baluchistan outcrop of the Himalayas. From Sibi there is (b) a main line running directly to Quetta via the Bolan pass, and (c) an alternative loop line via Harnai running into Quetta from the north-east; (b) is generally known as the Mushkaf—Bolan section, and (c) as the Sind—Pishin section. From Bostan junction, where routes (b) and (c) reunite, the railway continues (d) via the Khojak tunnel to Chaman on the Afghan frontier.

Though a railway such as (a) had been proposed at the time of the Indian Mutiny, it was not until 1876-77 that the line to Sibi was surveyed, immediately before the second Afghan war, during which a temporary line was constructed with great rapidity. The 150 miles are reported to have been completed in just over 100 days. This line ran from Ruk, as there was then no bridge over the Indus at Sukkur, and it was subsequently brought up to secondary main line standard. The completion of the great Lansdowne cantilever bridge in March, 1889, enabled trains to run from Rohri to Sibi. The gradients as far as Sibi are negligible.

The Sind-Pishin Railway

The Russian threat to Afghanistan in 1883 was responsible for the construction of (c) the Sind—Pishin section as a comparatively easily graded 5 ft. 6 in. gauge line—the ruling gradient is 1 in 45—completed to Quetta in 1887, and also for a beginning being made with the building of a more steeply inclined and partly metre gauge line towards the Bolan pass. By orders of the British Government these works were supposed to be "hush hush" and were known as the "Harnai road improvement scheme"; no rails or rolling stock were at first allowed to be bought and consequently progress was greatly retarded. The 134-mile Sind—Pishin (loop) line from Sibi to Bostan proved very difficult to build. It rises over 6,000 ft. in a distance of 120 miles and such obstacles as the Chappar Rift and Mudgorge faced the construction and also subsequently the maintenance engineers. Further details of this line are contained in the article entitled "A Remarkable Indian Frontier Railway" published in our issue of July 26, 1940. It may be remembered that the Chappar Rift section entailed nine tunnels, aggregating 6,400 ft. in length, and the 225-ft. high Louise Mar-

garet bridge. Other obstacles overcome were the Nari gorge, 14 miles long; the Kuchali defile, 5 miles long; and the summit pass, 25 miles long. Instability in the Mudgorge section has given rise to frequent engineering works, culminating in 1934-35 with a supreme effort to secure the line against constantly-moving hillsides. Like most of these frontier lines, the Sind—Pishin traverses arid rocky mountains subject to intense heat, which is shut in and radiated by the rocks. Yet in winter severe cold and snow settle down over the higher parts of the line. Temperatures range from 130° F. to 20° below zero, and due to the complete desolation of the region all labour had to be imported, but the coolies died like flies of cholera and fever; floods at rare intervals and hostile tribesmen completed their discomfiture.

The S.-P. loop is laid with light track and is suitable only for "XA" light standard 4-6-2 locomotives; the sharpest curve has a radius of 600 ft. Bostan junction is 20 miles north of Quetta.

From Khanai on the Sind—Pishin line a 2 ft. 6 in. gauge line was subsequently built to Hindubagh primarily to transport chrome ore from that area. In the late 1920's it was extended to Fort Sandeman, the total length being about 170 miles.

The Mushkaf-Bolan Railway

The original construction of the Bolan or direct line to Quetta was of a rough and ready nature, the break of gauge occurring at Hirok 4,500 ft. above sea level and about 50 miles from and some 4,000 ft. above Sibi. Nine miles of metre gauge line followed, running up to the Bolan pass 5,600 ft. in altitude near Kolpur station. Thence 25 miles of 5 ft. 6 in. gauge, completed the line to Quetta (5,500 ft.), and the whole line was opened in 1886.

The great handicap of break of gauge twice, caused the reconstruction of part of this line to be taken in hand late in 1891 as a wholly broad-gauge route; the work was known as the Mushkaf—Bolan railway. The then new length between Sibi and the broad-gauge summit near Kholpur is 63 miles; the distance from Sibi to Quetta is 88 miles. The rise between Sibi and Kolpur is 5,463 ft., and the ruling gradients are (i) from Sibi to Ab-i-gum (39 miles) 1 in 40, and (ii) Ab-i-gum and Kolpur (24 miles) 1 in 25; it is noteworthy that length (ii) is double line throughout, and that the equipment and maintenance on the whole of this route are up to main line standard.

The engineering difficulties were very great. Some of the major works were eight tunnels and four bridges over the river in the Mushkaf valley, a very long tunnel between it and the Bolan valley, three tunnels in the latter, and nine large bridges over the Bolan river. It will be seen, therefore, that this main line is remarkable not only as a great engineering feat, but also because of its 24 miles of 1 in 25 grades combined with double broad-gauge track.

Traffic Working

Normal peacetime traffic does not, of course, justify such a high standard, but it is nevertheless considerable. The mail, passenger, and goods trains are all worked through with standard superheated 2-8-0 "HGS" class locomotives. Pusher engines—usually eight-coupled tank engines—are used to assist up the 1 in 25 section. Two train and two pusher engines are sometimes used for very heavy trains. One "HGS" will take 240-ton mail trains up the 1 in 40 section unaided. The solitary Mallet and Garratt N.W.R. articulated locomotives were used for some years on this section, but have now been transferred to the Rawalpindi Division of the Lahore—Peshawar main line.

At Quetta is located the Divisional headquarters, and

(Text continued on page 22)

January 2, 1942

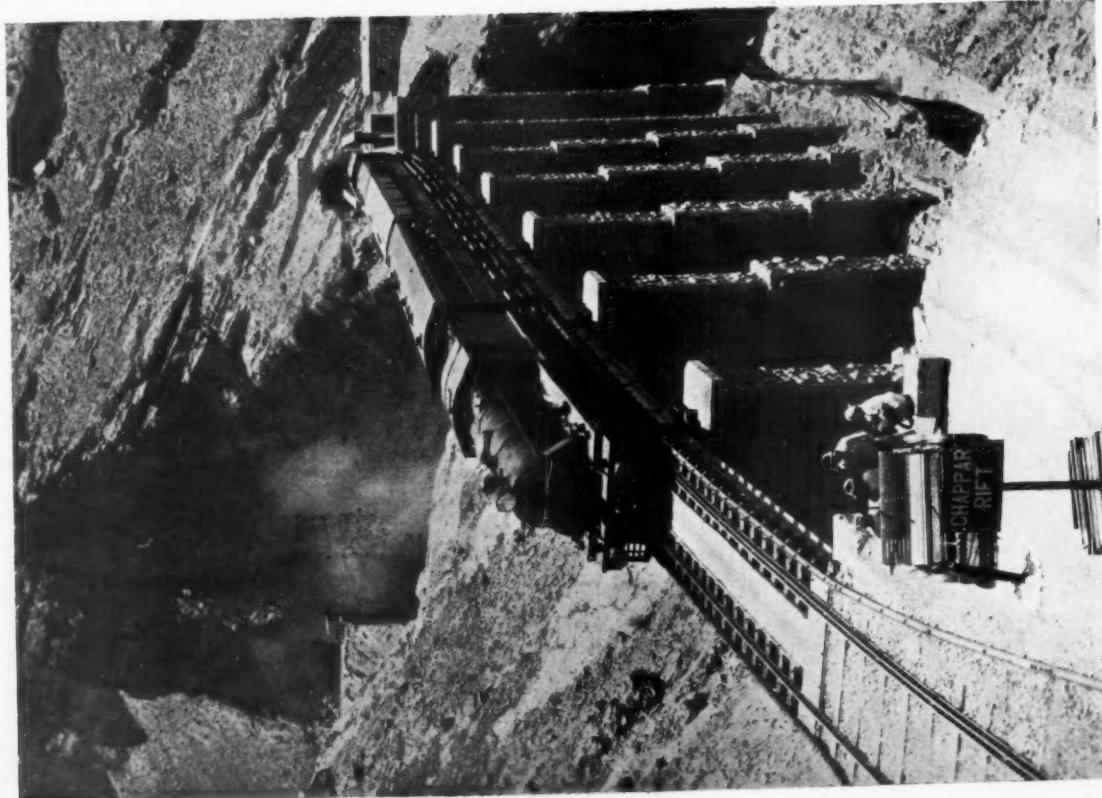
The Louise Margaret bridge spanning the Chappar Rift, Sind-Pishin Section



Above : The bridge and lower end of rift. A three-mile loop on a 1 in 45 grade separates the bridge from the section of line in the foreground



Left : End view of bridge with passenger train hauled by an "X C" Pacific locomotive crossing it



Right : A nearer view of the bridge showing its 225 ft. height above the stream

Scenes on the Sind-Pishin Section

Right : A spectacular length of the famous Chappar Rift. This cleft caused by the deformation of the earth's crust assisted by the action of water, is a deep chasm 2½ miles long joining two parallel valleys. The cliffs depicted are nearly 500 ft. high and are almost vertical. The line tunnels through the nose of the cliff which is of solid rock



Left : another view of the Chappar Rift section showing the base of the cliffs and a mixed train descending the 1 in 45 grade. It is hauled by an "XC" or light 4-6-2 standard locomotive and includes two water tanks for supplying wayside stations and permanent way gang huts in this normally parched and arid region

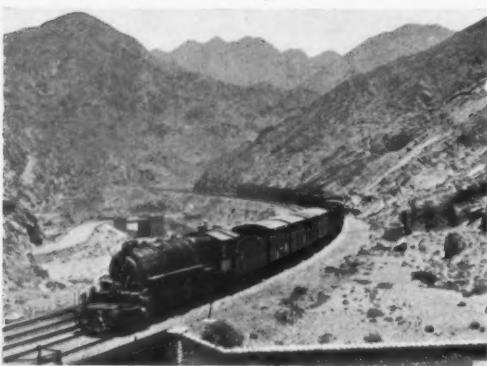
Right : The upper end of the rift showing the railway emerging from its precipitous cliffs to easy ground beyond by way of a tunnel. The track consists of light 60-lb. rails spiked through bearing plates to wooden sleepers resting on stone ballast



Scenes on the Mushkaf-Bolan Section



Above : Beyer-Garratt locomotive working goods train up 1 in 25 grade above Machh



*Left : Mallet locomotive assisted by two "HGS" banking engines working heavy goods train up 1 in 30 grade.
Right : Goods train on 1 in 25 "HGS" train engine and eight-coupled tank engine as pusher*



A goods train on the 1 in 25 section. On the left may be seen the portal of one of the original metre-gauge line tunnels long since abandoned

THE FEDERATED MALAY STATES RAILWAYS

A brief description of the system and its principal traffic and engineering features, including an unique policy of standardisation of Pacific locomotives for passenger and goods working

WITH so much attention focussed upon the latest British war fronts in the Far East, some notes on the railway lines of communication in the Federated Malay States are not out of place. In Malaya, the Government owned and worked system, including 121 miles of Johore leased lines, embraces all public railways, and is 1,068 route-miles in length and of metre gauge. The system is in the form of a Y, with Singapore at its base, Gemas the junction at the fork of the Y 137 miles from Singapore, Padang Besar (580 miles from Singapore) the terminus of the west coast line and situated on the Thailand (Siam) frontier in the extreme north-western corner of the States, and finally Tumpat the terminus of the east coast line from Gemas. Kota Bharu, one of the primary Japanese military objectives, is on the latter line and within ten miles of Tumpat. From Pasir Mas, about ten miles short of Kota Bharu, a 12-mile extension runs to the Thai frontier at Sungai Golok. There are many short branch lines, especially from the main line to the west coast. The main line is actually from Singapore to Prai, the terminus for Penang, the 99-mile line from Bukit Mertajam junction to Padang Besar being an extension of it to complete the west coast route to Thailand; it was opened in 1918.

Connections with Thailand

At both the frontier stations, Padang Besar and Sungai Golok, connection is made with the Royal State Railways of Thailand, and, until a few months ago (when it was reduced to once), there was a through mail and passenger express service from Penang (Prai) via Bukit Mertajam and Padang Besar to Bangkok, the Thailand capital, twice a week, the journey taking 26 hr. Air-conditioned restaurant, buffet, sleeping, and first class cars are run on the principal day or night trains between Singapore, Kuala Lumpur—the headquarters of the railway administration—and Prai (Penang). The railway is carried from Singapore island across the Johore Straits to the mainland by a causeway 3,465 ft. in length, containing 1,600,000 cu. yd. of granite, completed in 1924 through a maximum depth of 77 ft. of water. Penang also is on an island and is connected with Prai, the railway terminus on the mainland, by a ferry steamer service. Penang is 493 miles from Singapore.

Traffic Working

As well as the important and minor ports served, the principal industrial centre on the railway is Ipoh, the hub of the tin-mining and rubber-growing areas; it is on the main line and is provided with one of the three principal marshalling yards on the system, the others being at Kuala Lumpur and Port Swettenham. The Ipoh yard will accom-

modate 500 wagons, and about 800 wagons and 25 trains are dealt with daily; the capacity of and traffic at Kuala Lumpur are about 20 per cent. greater. There is also a handsome and extensive passenger station at Kuala Lumpur in striking oriental architecture and embodying a fine modern hotel. The station has five platforms and the yard is fully interlocked; traffic control is also centred here, 246 miles from Singapore and 247 miles from Penang.

Workshops

The locomotive, carriage, and wagon works are situated at Sentul 3½ miles north of Kuala Lumpur, and occupy an area of 56 acres, of which 11 are covered. There are all the usual shops and modern equipment, including a 60-ft. electric



Map of the Federated Malay States Railways



Alternating tunnels and bridge on the eastern main line

traverser. All plant is electrically driven, and current is taken from the municipal supply through a workshops sub-station. Nearly 3,000 hands are employed, mostly Tamils from Southern India, and about 100 heavy and 60 light engine repairs are carried out annually. Carriage and wagon bodies are built of local teak in the shops. Electric arc welding has superseded oxy-acetylene welding in recent years.

Kuala Lumpur is the capital of the F.M.S. and its seaport, Port Swettenham, is also the principal commercial port for ocean imports and exports into and from the States. It has an ocean wharf 1,011 ft. long, and three smaller wharves, each 100 ft. in length, for coastal traffic. There is also a wharf for discharging local oil boats, and another with three cranes where heavy material can be handled. For loading rubber into lighters, a pontoon wharf fitted with a gravity conveyor is used. The marshalling yard accommodates 550 wagons in addition to those in reception lines. Imports up to about 500,000 tons are dealt with annually. Five tugs, about 90 lighters, and four shunting engines, are in service at this port; there are four booked goods trains to and from Kuala Lumpur daily, and paths for numerous others when required.

Gemas junction yard will accommodate about 420 wagons, and about 500 are dealt with daily, about 18 goods and mixed trains shunting here every day on an average.

Singapore station and its approach line were removed and remodelled in 1932, and the new works formed the subject of an article in THE RAILWAY GAZETTE of November 18 of that year.

The ruling gradient throughout the system is 1 in 100, except in the Taiping Pass section, where it is 1 in 80; the sharpest curve is normally 3-degree (29-ch. rad.), but there are a few of 9 degrees.

The Singapore—Prai (Penang) main line and the Kuala Lumpur—Port Swettenham branch are laid with 80-lb. B.S.S. flat-bottom rails, 40 ft. in length, and the secondary main and other branch lines with 60-lb. rails. Main and branch lines with heavy traffic are stone ballasted, but other lines are sand ballasted. Local hardwood sleepers 6 ft. 6 in. x 10 in. x 5 in. are standardised, as are 1 in 15 crossings and 18 ft. 9½ in. switches for main-line junctions.

The longest bridge on the system is the Guillemand bridge

on the east coast line; it consists of five 250-ft. and five 150-ft. spans. The Perak River bridge has seven spans of 150 ft.; it is on the main line not far from Ipoh.

Several signalling and interlocking systems are in use, varying from entirely non-interlocked stations to full cabin interlocking.

On the east coast line, which was completed in September, 1931, there are nine tunnels with an aggregate length of 7,704 ft.

Locomotives and Rolling Stock

Of the 174 locomotives in service, a large proportion—possibly 60 per cent—is of the Pacific type. Increasing competition from road and sea in respect of both passenger and goods traffic has led to the unusual policy of running light trains at high speeds, goods as well as passenger, and the 4-6-2 type of locomotive—allowing of a wide firebox for the inferior coal available—is considered the most suitable for both, except in short-distance working. This accounts for the various types of Pacific locomotive together constituting almost the whole tender-engine stock. Actually, the F.M.S.R. was a pioneer line in ordering Pacifics for metre-gauge working, the earliest and most numerous (60) "H" class dating from 1907. They have 10-ton axle loads and exert 17,298 lb. tractive effort at 90 per cent. boiler pressure, whereas the 1928 "S" class three-cylinder 4-6-2's have 16-ton axle loads, and a tractive effort of 31,212 lb. Steel fireboxes have been adopted as standard practice, and the fuel used is a lignite of less than 10,000 B.T.U.; a grate area of 35 sq. ft. is, therefore, provided in the "S" class. A new type of 4-6-2, the "O" class, of which there are 17 engines, was built between 1937 and 1940, and has only 12½-ton axle loads. In 1938 the "C" class, a fine 4-6-4 type of tank engine, was introduced for short-distance service.

Carriage stock is modern and, as already mentioned, air-conditioning has been installed extensively. The sleeping cars carry 16 passengers in 8 two-berth compartments. Goods stock is mostly 10- to 14-ton four-wheel wagons, but coal is carried in 28-ton and 40-ton hopper bogie wagons. Latest figures give the total numbers of coaching and goods stock as 378 and 5,788 respectively; there are also 12 steam railcars.

INDIAN NORTH WEST FRONTIER RAILWAYS—I

(Continued from page 17)

there is a large railway colony at this great military station. In the disastrous earthquake of 1935 causing 20,000 deaths, the railway staff—650, including families, losing their lives—and buildings suffered severely. The rebuilding of the latter was described in our issue of August 2, 1940.

The Bostan-Chaman Extension

While work was still in hand on the two routes below Quetta, the line was extended northwards from Bostan junction to Gulistan on the south-eastern slopes of the Khwaja Amran mountain range, a distance of 31 miles. This range formed a formidable barrier against any further extension to the Afghan frontier, but at the end of 1887 the construction of this extension was sanctioned. Its great feature was the piercing of the range with the famous Khojak tunnel, 2½ miles in length and still the longest in India. Work was begun upon it in 1888, and, as no labour in India then had tunnelling experience, 60 miners (mostly Welsh) were imported for the job. Six headings were driven and two vertical shafts, one 318 ft. and the other 281 ft. deep. Construction proved to be very difficult, largely because extensive underground reservoirs of water and consequent great hydraulic pressures had to be overcome. The work was finished in 1891, and the first train ran through to Chaman, 88 miles north-west of Quetta, on January 1, 1892.

There is considerable peacetime trans-frontier traffic via Chaman, both passenger and goods, and in addition a lively seasonal fruit traffic, which distributes Afghan fruits throughout the large centres of India.

(To be continued)

RAILWAY NEWS SECTION

PERSONAL

G.W.R. APPOINTMENT

The directors have appointed Mr. F. Weller to be Assistant to the General Manager for Special Duties.

Mr. F. Weller has been appointed Assistant to the General Manager for Special Duties, Great Western Railway. He entered the company's service in 1908 in the Goods Department at Paddington and subsequently gained general experience at South Lambeth goods station and the London District Manager's Office.



Mr. F. Weller

Appointed Assistant to the General Manager for Special Duties, G.W.R.

From 1916 to 1919 he served with the R.A.M.C. In 1923 he was transferred to the General Manager's Office where he had experience of commercial questions affecting the company's railway, dock, and steamboat services and also acted as Secretary of the Suggestions Committee for a period. In 1932 he became first assistant in the General Section and in 1939 was placed in charge of the section. In recent years Mr. Weller has accompanied Sir James Milne to the meetings of the General Managers' Conference and has thus had contact with many major questions of railway policy. Since the outbreak of war he has been in charge of the staff retained at Paddington to deal with war emergency arrangements and urgent matters arising from the Government control of railways. Mr. Weller is a Brunel medallist of the London School of Economics.

SOUTHERN RAILWAY STAFF APPOINTMENTS

Mr. O. W. Cromwell, Staff Assistant to the General Manager, to be Chief Officer for Labour & Establishment.

Mr. H. A. Short to be Docks & Marine Manager during the absence of Mr. R. P. Biddle on loan to the Government.

Mr. F. J. Wymer, Assistant Continental Superintendent, to be Assistant (Planning) to the General Manager.

Mr. W. J. Pepler, Assistant Divisional Superintendent, Bristol, G.W.R., has, as recorded in our October 31 issue, been appointed Divisional Superintendent of the Exeter division. Mr. Pepler joined the railway service in November, 1900, and after a varied experience at Westbury, Wilts, and Melksham, was transferred in 1903 to the Assistant Divisional Superintendent's office at Swindon. Three years later he was attached to the Bristol Divisional Superintendent's Office and filled various posts there until 1926, when he was appointed Passenger Agent and Yardmaster at Avonmouth Docks. In 1933 he was appointed Stationmaster at Swindon Junction, and



Mr. W. J. Pepler

Appointed Divisional Superintendent, Exeter, G.W.R.

subsequently became Chief Clerk to the Bristol Divisional Superintendent in 1935. In 1938, he was made Assistant Divisional Superintendent at Bristol.

The Home Secretary & Minister of Home Security announces that Sir Harry Graham Haig, K.C.S.I., C.I.E., Regional Commissioner for the North Western Region, has been appointed Regional Commissioner for the Southern Region, in succession to Mr. Harold Butler, C.B., who, as recorded in our December 5 issue, returned to his post of Warden of Nuffield College on January 1.

The Rt. Hon. Sir Auckland Geddes, G.C.M.G., K.C.B., who is now able to resume duty will become Regional Commissioner for the North Western Region.

The King has conferred a barony of the United Kingdom upon Mr. Charles Latham, J.P. Mr. Latham is a part-time member of the London Passenger Transport Board.

Mr. S. W. Nelson, of the Ministry of War Transport, has been appointed to advise the Ceylon Government on transport questions. Mr. Nelson acted in a similar capacity in Malaya from 1936 to 1939.

Mr. F. R. Woodley, District Engineer, Cork, Great Southern Railways, as recorded in our December 12, 1941, issue, retired on January 1. Mr. Woodley was educated at Rugby School and University College, London, and went in 1901 as a pupil to Mr. A. Gordon, then Chief Engineer of the Great Southern & Western Railway. In 1902, Mr. Woodley was appointed Assistant to the Resident Engineer at Rosslare Harbour Works, in connection with the construction of the new harbour by the Fishguard & Rosslare Railways & Harbours Company. Two years later he became Assistant District Engineer for the Western District



Mr. F. R. Woodley

District Engineer, Cork, Great Southern Railways, 1925—1942

of the Great Southern & Western Railway and held this position until 1915, when he left in order to join H.M. Forces. On demobilisation in 1919 he returned to his former position and in 1922 was appointed Personal Assistant to Mr. J. F. Sides, then Chief Engineer. On the amalgamation of the Irish Free State railways into the Great Southern Railways in January, 1925, Mr. Woodley was appointed District Engineer, Cork. In August, 1930, he was placed in charge of an enlarged area with Cork still as his headquarters. He is a Member of the Institution of Civil Engineers of Ireland. Mr. Woodley's retirement is greatly regretted by his colleagues in his own and other departments.

We regret to record the death on December 21 of Mr. J. E. Sharpe, Divisional Superintendent, London West, Southern Railway.

Mr. H. G. N. Read, Assistant (Road & Air Transport & General), London Midland & Scottish Railway, has been elected Chairman of the Sheffield Corporation & Railways Joint Omnibus Committee for 1942. Mr. Read is a Director of the Isle of Man Air Services Limited and the Scottish Airways Limited.

British Railways and the War—96



Hong Kong from above the Kowloon waterfront. In the foreground is the Kowloon terminus of the Kowloon-Canton Railway (British section). Hong Kong surrendered to the Japanese on December 24

Though the British section of the railway between Kowloon and Canton is only 22 miles in length, it handles an appreciable local traffic as well as all through traffic to and from Canton. All the senior officers of the section are British, and the equipment is up-to-date and efficient. Rolling stock is largely pooled with the 88-mile Chinese section, but the British section owns 14 locomotives, 44 carriages, 130 wagons, 2 petrol railcars, and various service vehicles. Until the Japanese invaded Kwangtung about two years ago, the Kowloon-Canton and Canton-Hankow Railways together formed the main life-line of the Free Chinese (Chungking) Government, but since that time the 22 miles have been worked as a detached local railway. The terminus at Kowloon is a fine modern structure of the British type providing plenty of covered platform accommodation.

TRANSPORT SERVICES AND THE WAR—121

Passenger travel at Christmas—Air raids in the last war—War work of the Nizam's State Railway—Anti-waste campaign in South Africa—Government trains between Vichy and Paris

The volume of Christmas passenger travel proved to be smaller than expected. The public had been warned by broadcast, and by newspaper advertisements, and so forth, that on no day of Christmas week would more long-distance passenger trains be run, and that if more people sought to travel than could be accommodated they would find themselves left behind on the station. Colonel J. J. Llewellyn, Parliamentary Secretary to the

CHRISTMAS WEEK TRAVEL

"The Government did not intend merely to appeal to people to refrain from travelling long distances by rail this Christmas; they warned them of the limited services which would be available and that in no circumstances would those services be increased The trains would thus be far fewer than was usual at Christmas and if more people sought to travel than could be accommodated they would find themselves left behind on the station."

COL. LLEWELLIN,

Parliamentary Secretary to the Minister of War Transport
HOUSE OF COMMONS
1st December, 1941

You have been WARNED

RAILWAY EXECUTIVE COMMITTEE

Ministry of War Transport, gave this warning in the House of Commons on December 3, and it was afterwards reiterated to the public whenever opportunity occurred. On December 17 the Minister of War Transport issued a statement reminding the public that during Christmas week transport would be fully occupied in meeting its war commitments, that there was a shortage of locomotives, a shortage of labour, and, in certain parts, even a shortage of track capacity; in those circumstances it was inevitable that the essential movement of raw materials, munitions, and food should have first consideration. Lord Leathers recognised that the decision not to run extra trains would cause many disappointments, but added that this year it was the clear duty of everyone to stay where he was for the Christmas period. He added the injunction that nobody should travel except on urgent business for the nation. On December 20 the Railway Executive Committee reminded the public that no restaurant or buffet cars would be provided on steam trains in England or Wales between December 21 and December 28 inclusive.

In the event passenger travel at all British main-line stations proved far smaller than at previous Christmas periods, and it was stated in one quarter that it was the lightest Christmas passenger traffic experienced since the last war. No special trains were put into service, although some were lengthened and additional seating accommodation was provided by the substitution of ordinary coaching stock for buffet and restaurant cars. Those who travelled did so, in many cases, in several different cars. Christmas, and larger crowds were reported at all days before over the week-end before Christmas than on the main-line termini in many cases trains left with accommodation still available; the fact that at Paddington, which may be gauged from the fact special arrangements to deal with the previous year had to make only 37 through trains between 8.55 a.m. on Christmas Eve, and 12.55 a.m. on Christmas morning, as compared with 52 over the same period in 1941, as morning, as compared with 52 over 1940, and only one train, the 8.55 a.m. to

South Wales, was so crowded that a few passengers had to be left behind.

In the 9 o'clock news on December 24 the following statement was read at the request of the Minister of War Transport: "The Minister of War Transport sends a message of thanks to those people who have patriotically refrained from travelling this Christmas. He appreciates their response to the Government announcement that in the interest of the war effort more trains cannot be provided."

Christmas Travel in Eire

In Eire the Great Southern Railways Company announced that, owing to the shortage of fuel supplies, no additional passenger services would be available by rail or road during the Christmas holiday period. The public was requested to avoid non-essential travel, and those finding it necessary to travel were advised to do so not later than December 22. It was added that no passenger would be carried by rail from any of the Dublin termini (except on suburban services) on December 24, unless the passenger held a ticket bought before that date. The number of advance bookings, of necessity, had to be strictly limited. The Great Northern Railway (Ireland), in announcing its Christmas arrangements, said that the through passenger train services between Drogheda, Donabate, Howth, and so forth, to Westland Row, Dalkey, and Greystones, would be suspended from 10.30 a.m. on December 24 until December 29, when the normal services would be resumed.

Christmas Evacuation from Sydney

Combining Christmas holidays with possible evacuation, hundreds of children were sent by rail from Sydney, New South Wales, to the country. Evacuation of hospital patients from coastal cities in New South Wales has begun. Accommodation for 100,000 Sydney children is to be found in country areas.

Long-Distance Christmas Traffic in Germany

With a view to limiting as much as possible the expected additional Christmas traffic on the Reichsbahn, special regulations were issued limiting the use of all fast trains between December 19 and December 31 to travellers provided with special admission tickets in conjunction with their ordinary tickets. The fast trains at present in service are the familiar "D" trains (*Durchgangszüge*) and "E" trains (*Elitzüge*), with the addition of the following "war" fast trains: "DmW" trains (*D-Züge mit Wehrmachtssteil*), "D" trains with a section for the armed forces; "EmW" trains (*E-Züge mit Wehrmachtssteil*), "E" trains with a section for the armed forces; and "SFR" + (*Schnellzüge für Fronturlauber*), fast trains for member forces on leave from the front. Exceptions were made of the respect of travellers using those trains to catch connections (*Übergangsreisende*), passengers with special connecting tickets (*Weihnachtsfahrscheine*), and tickets for special Christmas (*Wehrmachtfahrkarten*), if these tickets were intended for the use of fast trains. Holders of such tickets were intended for the system or specified districts on whom tickets for the whole sleeper berths, were also exchanged, and holders of tickets for tickets and admission tickets adopted. The earliest issue of rail date of the intended journey was fixed at four days before the

Civilian Journey.

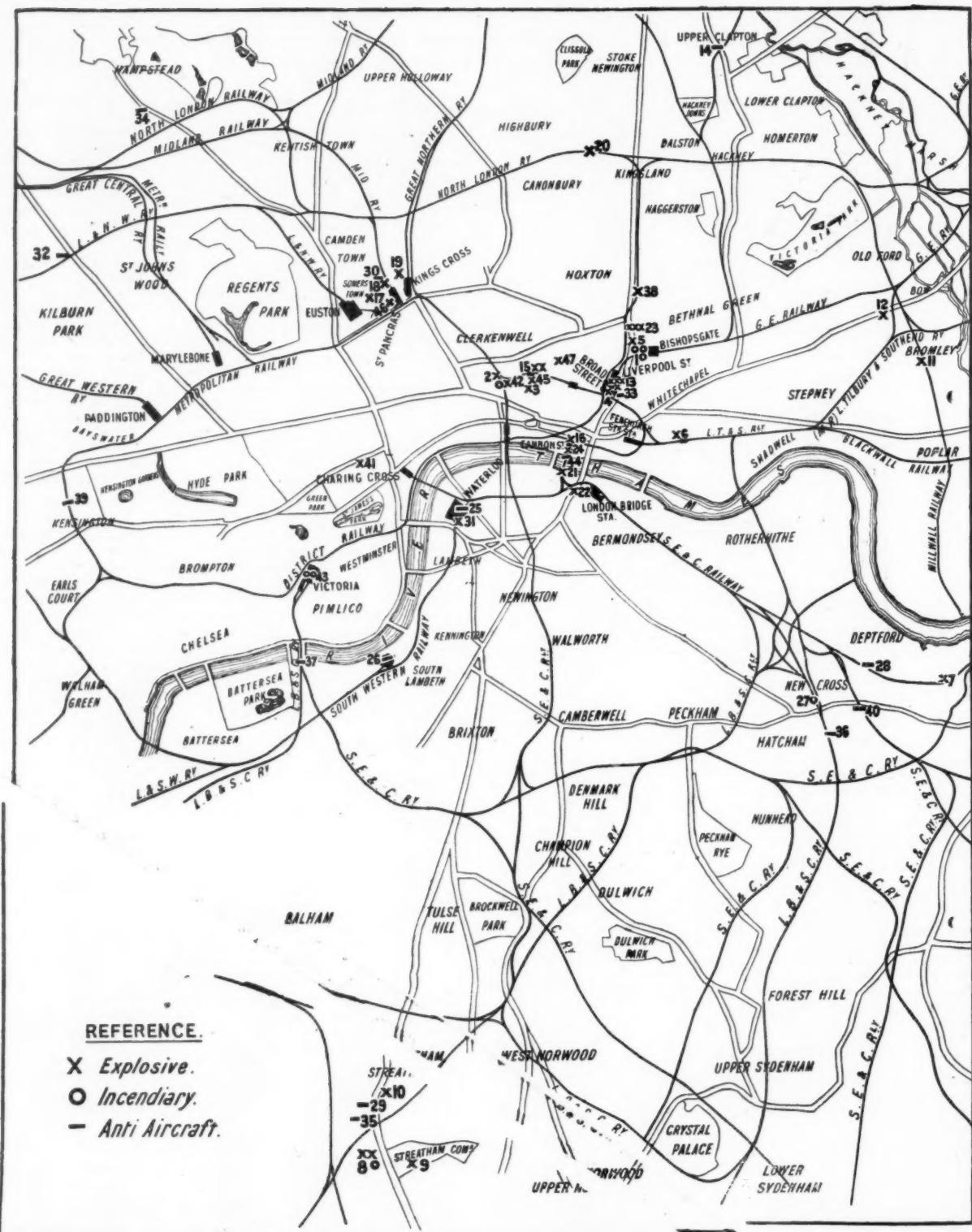
The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during the month of November:

Month of November:			
Killed (or missing and believed killed)	89
Injured and detained in hospital	155
Details are as follows:			

Children		
Men	Women under 16	
Killed or missing	39	14
Injured and detained in hospital	73	17

Air Raids in the Last War

In the war of 1914-1919, as in the present war, military considerations prevented the publication of detailed information about air raid damage during the continuance of hostilities but, with the signing of the Armistice, the authorities permitted the veil to be lifted, and in our issue of June 13, 1919, we were able to publish details of the damage caused by the 25 air raids on London. The official reports of the London Fire Brigade revealed to the public for the first time what was then regarded as the enormous extent of damage which had been caused by incendiary and explosive bombs. We reproduce opposite the map showing the location



Sketch map of the London area showing points where railway property was damaged during the 25 air raids on the Metropolitan area in the war of 1914-1919

January 2, 1942

THE RAILWAY GAZETTE

27

and cause of damage to railway property in the London area. The first raid occurred on Monday, May 31, 1915, when 105 sets of premises were damaged, including the Great Eastern Railway goods depot at Bishopsgate. Raid No. 3 on Wednesday, September 8, 1915, damaged 336 sets of premises, including Liverpool Street station and the Great Northern Railway goods depot in Farringdon Road. Streatham Common railway station of the London Brighton & South Coast Railway suffered in raid No. 6 on Sunday, September 24, 1916, and a photograph of the damage by a 100-lb. bomb to the signal box was reproduced at page 545 of our November 22, 1940, issue.

Raid No. 9—the second daylight raid—occurred on Wednesday, June 13, 1917. Four bombs were dropped at Liverpool Street station, Great Eastern Railway, and 16 persons were killed as well as others injured. On the same day Clapton station, Great Eastern Railway, suffered damage from an anti-aircraft shell and Aldgate East station, District Railway, was hit by a high explosive bomb. Cannon Street station, South Eastern & Chatham Railway, was among various railway properties to receive damage in a daylight raid on Saturday, July 17, 1917; but this was only one among many instances of damage to railway property on that day. Waterloo station, London & South Western Railway, suffered on Saturday night, September 29, 1917.

Raid No. 23 on Sunday night, February 17, 1918, resulted in the most extensive damage to railway property up to that time, and affected chiefly St. Pancras station, Midland Railway, and Somers Town goods station of the same railway. The last of this series of 25 raids occurred on Whitsun Day, May 19, 1918, when 29 high explosive bombs were dropped, damaging 3,010 sets of premises, killing 34 persons and injuring 94 others. Railway properties were not heavily affected on this occasion, the only two instances of damage being the Whitecross Street goods depot, Midland Railway, and Hither Green station, South Eastern & Chatham Railway.

Nizam's State Railway Distributes Accurate War News

In India where a vast illiterate rural population is susceptible to propaganda, either good or bad, it is important that there should be reliable sources from which accurate information concerning the progress of the war can be disseminated among the masses. With this end in view, an important step was taken in 1940 by the administration of H.E.H. the Nizam's State Railway, when it inaugurated a *Weekly News Letter* in English and in Urdu, for the circulation of such information throughout the Nizam's dominions. Some 5,000 copies of this bulletin are being distributed each week and should enlighten a considerable proportion of the 14,000,000 inhabitants of Hyderabad, the premier sovereign State in the sub-continent of India. The contents of one such news letter in each village will quickly become known by word-of-mouth to several hundreds or even thousands of villagers.

The Nizam's State Railway Trains R.A.F. Personnel

In March last H.E.H. the Nizam's State Railway administration opened Elementary Flying Training School No. 1 at Begumpet airport. The school is staffed by five Royal Air Force officers assisted by the railway's own Air Department instructors; it began with 26 trainees and by the end of the year 88 were under training. The maintenance of 10 planes was undertaken by the ground engineering staff of the railway.

The Nizam's Government offered to produce and train at its own expense 100 mechanics, in the first instance, in order to use the facilities available in Hyderabad for the training of Air Force personnel. A Technical Training Committee was, therefore, appointed under the direction of the railway administration, and for the training of skilled men for the manufacture of war material in the State, a main training centre was established, under the supervision of this committee, in the abandoned workshops of the railway's Road Transport Department at Kachiguda. At the end of March, 1941, 435 artisans were under training at this centre and in other suitable local workshops under the control of the committee.

The Anti-Waste Campaign in South Africa

When the National Anti-Waste Organisation was established by the South African Minister of Finance in July, 1940, the South African Railways & Harbours Administration had been conducting its own campaign for nearly a year, the movement having been launched by the management in August, 1939. The first efforts were directed at securing the whole-hearted co-operation of individual members of the staff, and this was followed by the appointment of special anti-waste committees on each system to supplement and co-ordinate the work of the individuals. These committees are doing excellent work particularly in connection with the salvaging of serviceable and scrap material, a matter which under existing world conditions is daily assuming greater importance. As an indication of what has been achieved in this connection, it may be recorded that the initial effort on one system resulted in the collection of 36 wagon loads of permanent way material and 58 wagon loads of scrap iron. On the same system surplus material comprising more than 7,000 tons of second hand and scrap rails, 631,000 gauge clips, 324,000 coachscrews, and 276,000 dogspikes, were collected over a period of 11 months, in addition to which

6,000 lb. of old cotton waste was salvaged. On another system, serviceable and scrap material to the value of £55,300 was collected and returned to the stores department during the financial year 1940-41, while on one of the smaller systems the value of material collected—ranging from nuts and bolts to pieces of machinery—amounted to over £7,000.

The conserving of stationery stocks is another matter which has received close attention. In one instance the efforts of the anti-waste committee resulted in the collection of nearly 3,600 surplus books and pads of printed forms and approximately 26,500 loose forms, cards, labels, etc. It is, however, not only towards the salvaging of material that the anti-waste campaign is directed, but also towards the elimination of waste in every sphere of railway activity. Deliberations in this connection with the outside staff on one of the systems have, for example, resulted in the adoption of various anti-waste measures which have brought about the quicker release of wagons for traffic by more expeditious handling at stations, the elimination of shunting delays and bad marshalling, the curtailment of late running of trains, and a reduction in the number of complaints and claims against the administration. The campaign is being conducted with vigour and enthusiasm throughout the various ramifications of railway operation, and with its constant intensification it is expected that even better results will be achieved in the future.

Underground Shelter in New York

In New York, as in London, the underground railways would provide the most extensive shelter during an air raid. It is estimated that about 2,134,512 persons could be accommodated.

Servicemen's Canteen in Chicago Union Station

A servicemen's canteen for soldiers, sailors, marines, and members of the coast guard in uniform, was opened in the Union station, Chicago, on November 11. Sandwiches, soft drinks, light refreshments, cigarettes, tobacco, toilet articles, films, and other items are sold at cantonment canteen prices. The canteen is sponsored by the Chicago Union Station Company; the Pennsylvania Railroad; the Chicago, Burlington & Quincy Railroad; the Chicago, Milwaukee, St. Paul & Pacific Railroad; and the Alton Railroad.

Additions to Pennsylvania Railroad Rolling Stock

As part of its contribution to national defence, the Pennsylvania Railroad is engaged in the most important and far-reaching programme of its history for the enlargement and improvement of its goods wagon supply. The programme calls for the construction, during 1941 and 1942, of 11,876 new freight cars, and the complete reconditioning, by class I heavy repairs, of approximately 3,000 a month. This will add 9,600 vehicles to the available supply by the close of the present year, and over 23,000 by October 1, 1942, just prior to the annual traffic peak. By that date, also, the proportion of freight cars under or awaiting repairs should have been reduced to 3·4 per cent., a minimum practicable working level.

The 3,000 repaired cars which the Pennsylvania is turning out of its shops every month are, from a service and utility standpoint, in every respect the equivalent of new cars. Only those parts are preserved in the repair process that are capable of giving results substantially equivalent to new, and, in addition, all improved and modernised features are applied, so that the repaired cars emerge from the shops ready for a dozen more years of service.

The programme also includes building 25 new locomotives and heavy repairs to existing engines at the rate of 200 a month.

In the 12-year period from January 1, 1930, to the end of 1941, 35,000 freight cars and 336 locomotives, all of advanced and efficient designs, will have been added to the Pennsylvania stock. In the same period, the railway has spent an aggregate of \$667,500,000 on improvements and additions to its general facilities.

Increase of Goods Rates in Serbia

According to a report from Belgrade the Serbian State Railways have announced the increase of goods rates by 10 to 15 per cent. as from January 1.

Roads and Waterways in Occupied Poland

A recent report issued by the chief of the Poznan (Posen) district—now called the Warthe Gaar by the Germans—showed that since the beginning of the German occupation about 650 km. (400 miles) of main road had been resurfaced, and 600 km. (375 miles) of secondary road had been improved by widening from 30 to 45 ft. By providing stronger surfaces, 88 bridges had been strengthened to carry 16-ton axle loads, and 70 temporary bridges had been erected, also capable of carrying 16-ton axle loads. The total expenditure was 55 million marks. Of 670 km (420 miles) of inland waterways, 440 km. (275 miles) were reopened during the first year of occupation, and 125 km. (80 miles) during the second year; the balance of about 100 km. (65 miles) was still under repair. Priority was given to the waterways connecting the rivers Vistula and Oder. New plans had been approved and would soon be brought into work for (i) a dam in one of the Warthe river tributaries to enclose a reservoir of an area of 28,000 acres and a content of

1,000 million cubic metres ; (ii) improvements to the river Warthe to make it navigable for 1,000-ton barges ; and (iii) a new canal connecting the Oder at Glogau with the Warthe at Srem. The various distances quoted (and their conversions into English miles) are approximate.

Government Trains between Vichy and Paris

Towards the end of November a through "Government" train began working regularly between Paris and Vichy for the benefit of ministers and other high Government officials travelling between the two French "capitals." The train leaves Vichy on Saturdays and Paris on Wednesdays.

Ordinary civilian railway communication between Paris and Vichy so far as through traffic is concerned is limited to two daily expresses each way operating between Paris and Marseilles *via* Nîmes. Although Vichy is on the South-Eastern Region (ex-P.L.M.) these expresses work to and from Paris (Austerlitz) station of the South-Western Region (ex-P.O.). In fact no through expresses work over the section of the South-Eastern Region from Paris (Gare de Lyon) to Saincaize which is the northernmost portion of the normal route from Paris *via* Nevers and Nîmes to Marseilles. The following is the present schedule of the expresses operating between Paris and Vichy (and on to Marseilles).

Distances km. miles	A		B		C		D	
	8.20 a.m.	8.35 p.m.	dep.	PARIS (Austerlitz)	arr.	9.20 p.m.	8.10 a.m.	
204 127	10.48 a.m.	11. 8 p.m.	arr.	Vierzon	... dep.	6.45 "	5.43 "	
	10.56 "	11.16 "	dep.	Do	... arr.	6.37 "	5.35 "	
90 56	12.20 p.m.	12.50 a.m.	arr.	Saincaize	... dep.	5.15 "	3.57 "	
	12.30 "	"	dep.	Do	... arr.	5.4 "	3.51 "	
50 31	1.16 "	1.39 "	arr.	Moulin*	... dep.	4.25 "	3.15 "	
	2. 1 "	2.24 "	dep.	Do	... arr.	3.40 "	2.30 "	
41 25	2.44 "	3.8 "	arr.	St. Germain-des-Fossés	dep.	3 "	1.45 "	
	2.56 "	3.25 "	dep.	Do	arr.	2.41 "	1.5 "	
11 7	3.7 "	3.37 "	arr.	VICHY	... dep.	2.30 "	1.25.3 "	
	3.15 "	3.50 "	dep.	Vichy	... arr.	2.22 "	1.21 "	
396 246	11.45 p.m.	12.35 p.m.	arr.	Nîmes	... dep.	5.35 a.m.	3 p.m.	
	6.12 a.m.	3.44 p.m.	arr.	Marseilles	... dep.	12.15 "	11.35 a.m.	

* Frontier station between occupied and un-occupied France (in occupied territory).

A—Restaurant car Paris to St. Germain-des-Fossés ; through 1st, 2nd, and 3rd class Paris to Nîmes.

B—Through 1st and 2nd class carriages Paris to Vichy ; 2nd class sleeping car Paris to Vichy ; and 1st class couchettes Paris to Vichy (apart from through 1st, 2nd, and 3rd class cars, and 1st class couchettes, Paris—Nîmes—Béziers).

C—Restaurant car St. Germain-des-Fossés to Paris ; through 1st, 2nd, and 3rd class cars Nîmes to Paris.

D—Through 1st and 2nd class carriages Vichy to Paris ; 2nd class sleeping car Vichy to Paris ; and 1st class couchettes Vichy to Paris (apart from through 1st, 2nd and 3rd class carriages, and 1st class couchettes, Béziers—Nîmes—Paris).

It will be noticed that between Paris and Vierzon the trains run over the electrified Paris—Limoges—Toulouse main line (electrified as far as Brive to the south of Vierzon) of the South-Western Region (ex-P.O.) ; between Vierzon and Saincaize over the cross-country main line Le Mans—Tours—Vierzon—Saincaize (also South-Western Region) where the Nîmes main line (South-Eastern Region) is reached. The cross-country trains leave or join this main line at St. Germain-des-Fossés to and from Lyons.

Extensions of the War

As a result of the Japanese attack on British and United States possessions in the Pacific (see p. 628, December 12 issue), many other countries have declared their attitude to what is now a world-wide war. As a matter of record, we are tabulating the following :—

- December 7. Canada declared war on Japan.
- December 8. Australia declared war on Japan.
- December 8. New Zealand declared war on Japan.
- December 8. South Africa declared war on Japan.
- December 8. Netherlands Empire declared war on Japan.
- December 8. Egypt declared war on Japan.
- December 8. China declared war on Japan, Germany, and Italy.
- December 8. Central American Republics of Honduras, Haiti, and Salvador declare war on Japan.
- December 8. Thailand allowed passage of Japanese troops.
- December 8. Brazil confirmed solidarity with the U.S.A.
- December 9. Cuba declared war on Japan.
- December 9. Argentina confirmed solidarity with U.S.A.
- December 9. Uruguay confirmed solidarity with U.S.A.
- December 11. Germany and Italy declared war on U.S.A.
- December 11. Chile confirmed solidarity with U.S.A.
- December 11. Netherlands Empire declared war on Italy.
- December 12. Poland declared war on Japan.
- December 12. Mexico severed diplomatic relations with Italy and Germany.
- December 13. Bulgaria declared war on Great Britain and U.S.A.
- December 14. Croat Government declared war on Great Britain and U.S.A.
- December 22. Reported alliance between Japan and Thailand.

Private Railways in Belgium

When traffic over the Belgian railway system was gradually resumed as from August 1, 1940, as repairs were effected and dispersed rolling stock assembled (see notes published in THE RAILWAY GAZETTE of August 8, 1941) it was decided that the Société Nationale des Chemins de fer Belges should take over the working of the Nord Belge lines as well as of the lines belonging to the Chemin de fer de Chimay and also of the lines on the right bank of the Scheldt river belonging to the Compagnie du Chemin de fer de Malines à Terneuzen. The terms on which the Société Nationale is supplanting the former companies in the working of their systems have still to be fixed.

French Aviation Changes

Further information has now come to hand concerning the important French aviation changes recorded at page 541 of our November 21 issue. It is now reported that, in accordance with the powers the new Air Statute gives to the Vichy government, all contracts concluded between former French governments and Air France since 1933 have been rescinded ; also the concession granted to Air France-Transatlantique in May, 1937, for the organisation of a transatlantic air service in competition with the German scheme. The concession granted to the Compagnie des Chargeurs Réunis in 1935 for operating certain air lines in French West and Equatorial Africa in connection with that company's shipping services has similarly been cancelled.

Swedish Air Traffic

The Swedish air transport company, Aerotransport Aktiebolaget, is maintaining the following schedule of winter services, in association with the national air traffic companies of the respective countries:

Stockholm-Berlin, one morning service, Berlin-Stockholm, one afternoon service, on weekdays only ; Malmö-Copenhagen-Berlin, one morning service, and Berlin-Copenhagen-Malmö, one later afternoon service, on weekdays only. The service from Malmö connects with the fast train leaving Stockholm at 9.15 p.m. on the previous night, while the arrival of the aircraft at Malmö (6.30 p.m.) leaves ample time to catch the 10.5 p.m. fast train to Stockholm due there at 8.15 a.m. on the next day. Another air service is Stockholm-Helsinki ; the departure in both directions is in the morning, there is a landing shown in the timetable as "intermediate aerodrome" (presumably Mariehamn on the Åland Islands), and the arrival at both ends is late in the afternoon. The service is daily. The Stockholm-Oslo flights are on the mornings of Tuesdays, Thursdays, and Saturdays, while the return services (also in the morning) are operated on Mondays, Wednesdays, and Fridays. Aero transport is also participating in the weekday services Oslo-Copenhagen-Berlin (afternoons), and Berlin-Copenhagen-Oslo (mornings).

Chinese Railway Converted to Road

The short length of railway connecting Swatow and Chaochow has now been converted into a highway. The railway was destroyed by the Chinese in face of invading Japanese forces, and, being an isolated length of line, it was probably considered advisable to replace it by a road, especially in view of shortage of sources of railway material supplies.

Transport Restrictions in New Zealand

It was reported on December 15 that petrol was to be issued in New Zealand for essential purposes only and that the sale of motor tyres was to be controlled. Giving the report, Reuters added that railway services were being drastically cut.

Government Road Haulage Scheme

The conditions were announced on December 23 under which the Hauliers National Traffic Pool will act as agent for the Minister of War Transport under the Government road haulage scheme. The organisation of hauliers to act as agent for the Minister in the allocation to carriers of traffics will be known as the "Hauliers National Traffic Pool" and will consist of a committee of members for the time being of the Road Haulage (Operations) Advisory Committee. Registration to participate in the carriage of traffic allocated by or on behalf of the pool will be open to all owners of vehicles licensed to carry for hire or reward an "A" or "B" licence or corresponding defence permit. The pool will not allocate traffic to vehicles operated under "B" or "C" licences or corresponding defence permits unless they have obtained an assurance from the operator that he is not debarred from carrying such traffic. The allocation of traffic will be in the sole discretion of the pool.

Centenary of the Railway Clearing House

A simple ceremony on Monday marked this important British railway landmark

The Railway Clearing House, or the R.C.H. as it is familiarly called in railway circles, is known to every railwayman and also to the many trading organisations throughout the country, but its uses and functions are little known to the general public, and it is not too much to say that *all* its uses and functions are known to very few. From time to time, however, a glimpse of the important work for which the Railway Clearing House is responsible is given in the form of articles and lectures; noteworthy series of articles are those which appeared in the columns of our constituent *The Railway News* during 1888, and in *The Financial Times* in December, 1929, while the most recent authoritative paper on the subject was that presented by Mr. E. E. Painter, then Secretary of the Railway Clearing House, on January 10, 1939, to the Industrial Transport Association.

The centenary of the Railway Clearing House, which falls today (January 2), has provided one more occasion for giving members of the public some insight into the work undertaken by this organisation, when a small gathering of railway officers and members of the press assembled last Monday in the Stephen-son Rooms at the Euston Hotel. Among those present were:—

Railway Clearing House.—Sir Francis H. Dent, C.V.O. (Chairman); Messrs. E. E. Painter (late Secretary); F. P. Brininger (Head of Secretarial Department); A. A. Forrester (Head of Traffic Department); T. J. Lynch; and A. C. Everard. Mr. J. E. T. Stanbra, the Secretary, was unable through illness to be present.

Great Western Railway.—Mr. G. Dyall (Acting Publicity Officer).

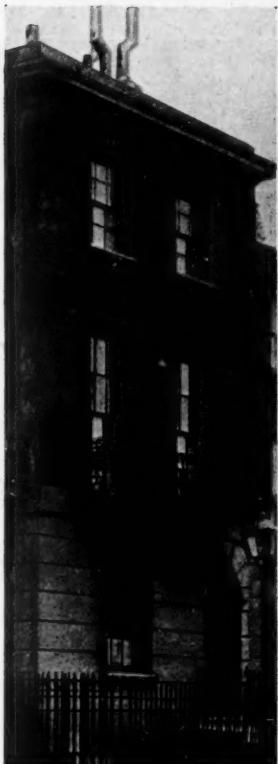
London Midland & Scottish Railway.—Messrs. G. H. Loftus Allen, Advertising & Publicity Officer, and W. C. Brudenell (Press Officer).

London Passenger Transport Board.—Messrs. F. Scothorne (Public Relations Officer); H. T. Carr (Assistant Publicity Officer); and Evan Evans (Operating Manager, Railways).

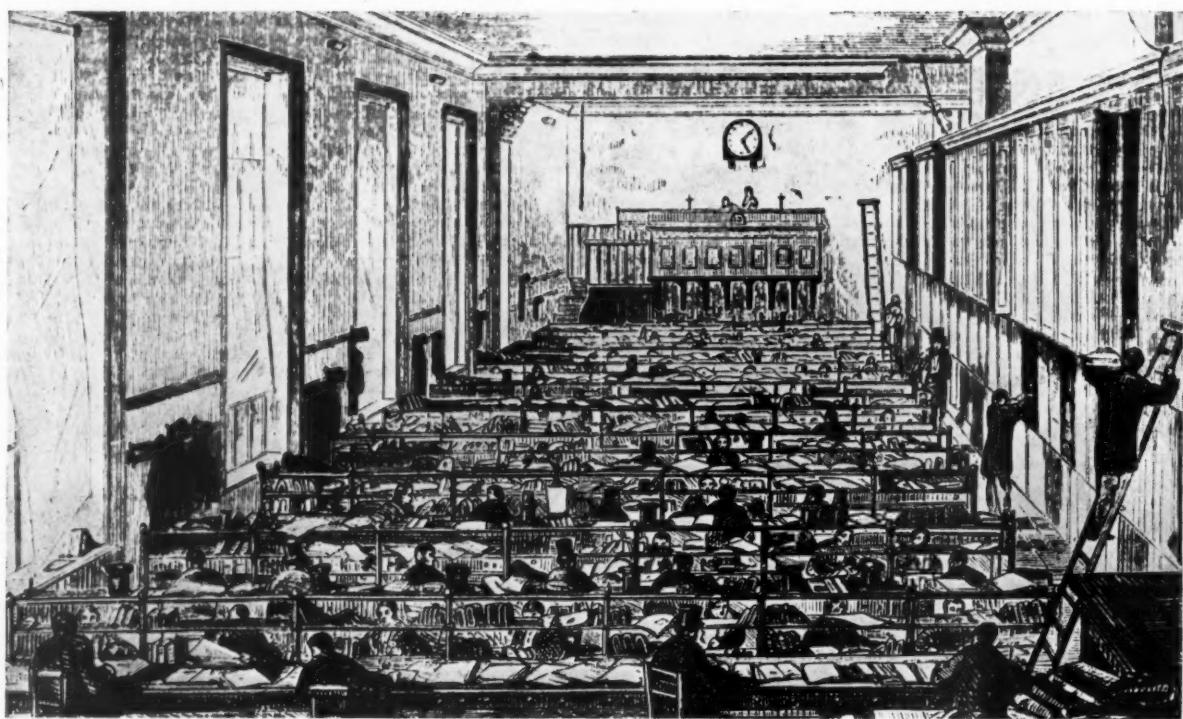
Southern Railway.—Messrs. C. Grasemann (Public Relations & Advertising Officer); and W. J. Shorter (Assistant to the Public Relations Officer).

Others present included :—
Mr. J. R. Hind (British Railways Press Officer).
Messrs. W. S. Tredgold and H. A. Boyce (Jas. Truscott & Son Ltd.); J. A. Kay and Charles E. Lee (THE RAILWAY GAZETTE); Charles F. Klapper (Modern Transport); C. E. R. Sherrington (Secretary, Rail-way Research Service).

A century ago, although there was a substantial mileage of public railway in service in Great Britain, rail transport in its modern sense was in its infancy. Most of the early railway companies were formed with the object of constructing relatively short lengths of railway, and even the journey between London and Liverpool, which then formed the backbone of the railway system of the country, involved transit over three railway systems, namely the London & Birmingham, the



Recent view of the headquarters of the Railway Clearing House in Eversholt Street (formerly Seymour Street), Euston. The small view above shows the original building at 111, Drummond Street, in which the R.C.H. was housed in 1842



Reproduction of an old woodcut showing the Long Office of the Railway Clearing House in 1864

(From "Cassell's Illustrated Family Paper" of October 8, 1864)



View immediately before the outbreak of war in the Long Office of the Railway Clearing House, Eversholt Street

For many years this thoroughfare was world-famous as Seymour Street; it was renamed Eversholt Street on July 1, 1938

Grand Junction, and the Liverpool & Manchester Railway. In general, a railway company possessed no greater powers than to carry passengers or goods to the limits of its own line. Each company constituted an independent means of transport with locomotives, carriages, and wagons, which were confined to its own system, and with its own tariff and system of financial operations and accounts, independent of co-ordination with its neighbours. With very few exceptions, therefore, a long-distance traveller was compelled to change carriages and transfer his luggage at every boundary between the system of one railway and another. Moreover, wagons had to be unloaded and their contents discharged upon wharves and platforms for reloading into the wagons of the adjacent railway company. There were a few exceptions, such as the operation of Grand Junction trains over the Liverpool & Manchester Railway into both Liverpool and Manchester, but such arrangements, and any through bookings which existed, were matters for individual agreement between any two companies.

Before public railways existed, in the heyday of the coaching era, there was a clearing house of the proprietors of stage coaches, which had its headquarters at the Golden Cross,

adjusting the receipts from through traffic. The process of settlement at that time was tedious and difficult and it occurred to him that this work would be effected very much more satisfactorily by an independent tribunal which should act under the written instructions of the companies concerned.

Robert Stephenson was then Engineer of the London & Birmingham, the Birmingham & Derby, and the North Midland Railways, and these three companies had through bookings and settlements with one another, and it was to him that James Alport communicated his suggestion for the adoption of a system similar to that of the London Bankers Clearing House. Robert Stephenson discussed the matter with George Carr Glyn, the Chairman of the London & Birmingham Railway Company, and both concurred in the desirability of establishing a Railway Clearing House. Carr Glyn selected for the purpose of organising the system Kenneth Morison, formerly in the service of Messrs. Macaulay & Babington, East India merchants, Calcutta, and afterwards in the audit office of the London & Birmingham Railway. Eventually the obstacles were overcome, and arrangements were completed for enabling the clearing system to be put into operation on January 2, 1842. The Railway Clearing House



The famous table, approximately 30 ft. long, in the Board Room of the Railway Clearing House, reputed to be the largest oval table in London

Charing Cross. Here the managers of the respective undertakings arranged among themselves the amounts due to the respective proprietors who owned or hired the vehicles which were employed on any journey. A passenger or a parcel, for instance, booked from London to Holyhead might be conveyed in the course of the journey by coaches owned by at least a dozen different proprietors, and to each of these was allotted that portion of the fare to which he was entitled by reason of the mileage he had provided. The amount received for the carriage of mails formed a portion of the common fund. It was but natural, therefore, that the idea should be extended to the railway system, although the main principle is generally regarded as having been based upon that of the London Bankers Clearing House rather than upon the practise of the coaching era.

Fifty years ago Sir James Alport communicated to *The Railway News* some interesting particulars regarding the formation of the Railway Clearing House. He said that he entered the service of the Birmingham & Derby Railway Company in 1839, and subsequently was entrusted with the traffic arrangements of that company. In view of the strategic importance of the territory occupied by this railway in effecting communication between various other railways, he was necessarily brought into conference with other companies as to the mode of dividing and

when first established was not received with favour by quite a number of the railway companies then existing, and only 9 companies were parties to the system from the outset, namely:—

London & Birmingham
Midland Counties
Birmingham & Derby Junction
North Midland
Manchester & Leeds

Leeds & Selby
York & North Midland
Hull & Selby
Great North of England

The first meeting of the Railway Clearing House took place on April 26, 1842, when George Carr Glyn was elected Chairman of the committee of delegates. It was held at No. 111, Drummond Street (see illustration on page 29), nearly opposite the main entrance to Euston station, where accommodation had been found for the small staff of six with which the system was launched. The office was destroyed as the result of enemy action during 1941. By 1845 there were 16 railways included in the clearing system, and 517,888 through passengers were conveyed. Each of these passengers was carried an average distance of 146 miles. The sixteen railways had an aggregate length of 656 miles, or an average of 41 miles, so that every passenger passed through an average of nearly four junctions with other lines than the one on which he began his journey. It is interesting to notice the proportion of the classes in 1845; there were 234,000

first, 215,297 second, and only 63,581 third class passengers. The total number of miles travelled by these through passengers was 75,783,000, or an average of 146 miles each, as stated above. In the conveyance of these passengers 59,756 railway carriages were employed, and no fewer than 5,813 flat wagons were employed in conveying private road carriages over these railways, for the accommodation of those who preferred to ride in their own carriages instead of in railway vehicles. In addition to the work of apportioning to the respective companies their share of the receipts for the work done, the Clearing House took cognisance of the movements, the destinations, and the earnings of 7,573 horse boxes—for those who preferred to travel in their private carriages had, of course, to take with them the horses which were to be "put to" at the end of the journey. There were further 2,607 post offices carried on these railways and the receipts from these were to be duly accounted for to the different companies.

The little house in Drummond Street soon proved to be insufficient to accommodate the rapidly increasing staff, and in February, 1847, the Secretary reported "that a larger office must be provided without delay." As a result a more commodious building was provided in Seymour Street (now Eversholt Street) which runs parallel with Euston station. The building was planned by Philip Hardwick, the Architect responsible for the famous Doric Arch which forms the front of Euston station. The new building formed the first portion of the extensive premises which now line the greater part of the west side of Eversholt Street, with a frontage of nearly 300 yd. (see illustration on page 29), accommodating in the early part of this century a peak staff of approximately 2,400, as well as providing many conference rooms, and spacious kitchens and dining rooms for the staff.

By 1865, about 160 railway companies had become parties to the R.C.H., although by that date about one half of that number ceased to be independent parties, mainly owing to amalgamation with or absorption by other companies. From its inception, the establishment has been under the control of the clearing committee, to which each party company was originally entitled to send one delegate. This arrangement continued until the passing of the Railways Act, 1921, when, consequent upon the resulting amalgamations, the four group companies, namely, the Great Western, London Midland & Scottish, London & North Eastern, and the Southern, each became entitled to appoint four delegates; there is still one delegate for each of the other eleven party companies. The following is the list of chairmen of the clearing committee from 1842 up to the present time:—

CHAIRMEN OF THE RAILWAY CLEARING HOUSE

1842-1873	George Carr Glyn, M.P. (afterwards first Baron Wolverton)
1874	Robert Benson
1875-1885	George Grenfell Glyn (second Baron Wolverton)
1886-1895	Oscar Leslie Stephen
1896-1906	Lord Claude John Hamilton
1907	Theodore Julius Hare
	Sir Lesley Charles Probyn } Chairmen at separate meetings
1908-1914	Charles Mortimer
1915-1917	Hugh Wyndham Luttrell Harford
1918-1929 (May)	Sir Edmund Russborough Turton, Bart., M.P.
1929 (June) to date	Sir Francis Henry Dent, C.V.O.

At first, the Railway Clearing House was a voluntary association with no legal standing, but the Railway Clearing Act, which was passed in 1850, gave it legal status in securing the payment of its balances. By virtue of an Act (60 & 61 Vic. cap. 116) which received the Royal Assent on July 15, 1897, the Railway Clearing House became a body corporate with its own seal.

The motto of the R.C.H. is *Continuos Tenui Cursus* (I have kept unbroken ways). The significance of the arms is that the Railway Clearing House exists for the fair and equitable apportionment, in advancing the commerce of the country, of fares and rates of carriage received from the public, and the caduceus and the scales typify this. As the work is carried on chiefly by means of paper with the use of the pen, the scroll and pens are employed to suggest this idea. The locomotive, as the principal means by which the whole railway system is worked, appears in the centre of the arms and of the whole design. In a poetic sense all the work is done by, or in connection with, the winged wheel which appears in the crest. The sphere of the work of the Railway Clearing House is England, Scotland, and Ireland, and each of these countries is indicated by its national emblematic flower.

In the early days of railways intense competition prevailed between one company and another operating in common areas, and there is little doubt that some companies adopted devious ways of attracting business, much of which resulted in wasted effort. As time progressed the companies found it more desir-

able to discuss problems round the conference table, and here again the R.C.H. became useful in providing a neutral ground where the executive officers of the different lines could meet and discuss the various matters connected with railway management. Railway Clearing House meetings are a recognised institution throughout the railway industry, by the many trading interests of the country, and by the various Government Departments. The R.C.H. has provided the useful secretariat for all the various and numerous conferences, which in 1939 totalled nearly 2,000.

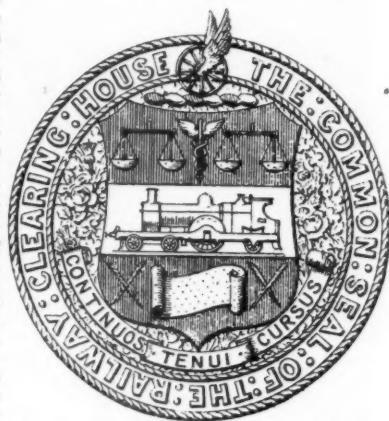
Prior to the amalgamations under the Railways Act, 1921, and the Irish Railways Act, 1924, the number of companies which were parties to the Railway Clearing House had become 58, representing approximately 23,000 miles of line. The staff had grown to nearly 3,300, including numbertakers. Since 1925, as a result of amalgamations, the work of the R.C.H. has necessarily lessened, and shortly before the outbreak of war the clerical staff numbered about 1,800, compared with the peak staff of approximately 2,400 in the early part of this century. There are about 600 numbertakers stationed at various railway junctions where the systems of two companies meet, who take records of the vehicles exchanged between one railway system and another, from which the sums due to the respective companies for use of vehicles are calculated. In 1937 the numbertakers recorded nearly 11,000,000 entries in respect of stock exchanged at junctions.

The Railway Clearing House authorities have done much, both within and without their sphere of activities, to promote the well-being of their fellowmen. The Railway Benevolent Institution was begun in the R.C.H. over eighty years ago. This institution has been the means of bringing relief to thousands of railway employees and their children. The first Secretary was Thomas Dixon, who later became Secretary of the Alexandra Palace Company. The R.C.H. founded an athletic club in 1858, which, so far as can be traced, was the first railway athletic club in the country. Some of its members have represented this country in Olympic Games and International Football. Also, at one time, the R.C.H. had a rowing club, and as early as 1868 the Clearing House Four reached the final at Henley but were beaten by the Thames Rowing Club. The Clearing House Male Voice Choir began its activities over fifty years ago and has broadcast on several occasions, including one to America in 1931. The choir was fortunate in having for its conductor Stanford Robinson of the B.B.C. The war has temporarily suspended its activities.

Several notable men have emerged from the ranks of the Railway Clearing House staff, and many have joined the staffs of London banks, several of whom succeeded in reaching managerial rank. Some have left to join the Church, the stage, and the concert platform, and four members of the staff during their period of service have been released from their duties to take their places in the House of Commons. The following are a few of the R.C.H. staff who became prominent:—

Donald Murray, Secretary of the National Liberal Club from 1888 to 1912;
John Lane, the Founder of the "Bodley Head" publishing house;
John Noble, General Manager of the Midland Railway;
Sir Myles Fenton, General Manager of the South Eastern Railway;
Sir Harold Bellman, President of the Abbey Road Building Society.
Many others who spent their early days in the service of the Railway Clearing House have afterwards held important railway positions both at home and abroad.

The little centenary ceremony on Monday last was quite informal and without speeches, but Sir Francis Dent took the opportunity of paying tribute to the staff, past and present, saying that the work of the R.C.H., important and efficient, but unobtrusive, owed everything to its officers.



Seal of the Railway Clearing House

January 2, 1942

THE RAILWAY GAZETTE

33

Locomotive Balancing and Hammer-Blow

A brief report of the discussion on the Colam-Watson and Cox papers at a joint meeting of the Institutions of Civil and Mechanical Engineers

The papers summarised in our last issue* were presented to a joint meeting of the Institutions of Civil and Mechanical Engineers in London on December 16 and gave rise to a lively and informative discussion.

Prof. C. E. Inglis, President of the Institution of Civil Engineers, occupied the chair and, after the authors had briefly summarised their papers, confessed himself as having for many years held the view that it was unnecessary to balance the reciprocating masses of steam locomotives. Until now, however, it seemed to have been regarded as too unorthodox to express such views, but, in the light of the papers now before the meeting, he felt justified in giving voice to his opinion and supporting it by certain mathematical evidence. Unbalanced reciprocating masses of course had certain effects, but he contended that the normal cure of inserting overbalance weights and thus introducing hammer-blows was worse than the disease, and, in any event, such precautions as the use of non-resonance springs between engine and tender would, to all intents and purposes, eliminate the longitudinal vibrations set up by the reciprocating forces. Forty years ago he had written a paper on these lines, and it was gratifying that one of the authors who recommended the abolition of hammer-blows, Sir Harold Colam, had been a student of his in those days.

Importance of Dynamic Balancing

Mr. W. A. Stanier, President of the Institution of Mechanical Engineers, after moving a vote of thanks to the authors, replied to the criticism of the Pacific Locomotive Committee which had been made by Sir Harold Colam and Major J. D. Watson, by referring to the extensive researches that committee had made before expressing the opinion to which the authors took exception. As to the results of the experiments described in their paper, he was inclined to doubt whether the authors had really known exactly to what extent the balance in the locomotives tested corresponded in fact with that which had been theoretically calculated. In the absence of preliminary dynamic balancing, such as was now universal on British railways, he suggested that the results were open to some doubt. Mr. Stanier asked what extra axle loads civil engineers would permit mechanical engineers if the latter agreed to eliminate hammer-blows in their engines.

Mr. George Ellson showed diagrams of tests on the railway bridge over the Thames at Barnes, carried out with the Southern Railway 3-cylinder 4-6-2 "Merchant Navy" class locomotives, which, having no reciprocating balance, produced no hammer-blows; the outside cylinder "H 15" class 4-6-0 with and without reciprocating balance; and the new Co+Co type electric locomotive which also produced no hammer-blows. These diagrams indicated the advantage of the locomotives from which hammer-blows had been eliminated. Mr. Ellson also emphasised the importance of a high standard of track maintenance to deal with the super speeds which had been introduced shortly before the war and which would probably be required to an even wider extent after the war. He de-

scribed a new rail joint which had given satisfactory service under the most arduous conditions on the Southern Railway.

Wheel Bouncing Experiments

Mr. F. C. Johansen described wheel-slipping tests carried out by the L.M.S.R. Research Department with standard Class "5" 2-cylinder 4-6-0 locomotives, and exhibited cinematograph films of these tests. Three locomotives had been selected, one with the then standard 66 per cent. reciprocating balance, the other two with 50 and 30 per cent. balance respectively. The tests clearly showed that at 108 m.p.h. there was with this particular class of engine very considerable lateral motion in the trailing coupled wheels with the 30 per cent. locomotive, the driving wheels of which, however, did not lift from the rails. At the other end of the scale, the 66 per cent. locomotive produced no noticeable side oscillation of the wheels, but at a slipping speed of 103 m.p.h. the driving wheels lifted at each revolution a maximum of 2·4 in., and the rail amplitude in these conditions was 0·7 in. After the test the rails were found to be severely crippled. The decision had been reached that in future these locomotives should have 50 per cent. reciprocating balance.

Mr. J. C. L. Train, commenting upon Mr. Cox's observation that it was for the bridge engineer to say whether it is better so to balance locomotives as to minimise the total engine hammer-blows at the expense of a considerable blow on individual wheels, or to increase the total and keep down the individual blow, said that it was the component parts of bridges, as of the track, rather than the main girders which gave concern to civil engineers, and therefore he would prefer the least possible individual wheel hammer-blows. He suggested that the P.L.M. tests of lateral pressure between wheel and rail should not be ignored in this connection. In those tests it was shown that if the lateral blows should exceed the static wheel load, climbing might take place. In his view it was clearly indicated that for high-speed haulage the multi-cylinder engine had outstanding advantages.

Mr. O. V. Bulleid, referring to his new 3-cylinder 4-6-2 "Merchant Navy" class locomotives, mentioned that an advantage in the elimination of reciprocating balance was the saving of as much as 1,377 lb. of deadweight per engine. He had used a 24-in. instead of the more usual 26-in. or 28-in. piston stroke as part compensation for having no reciprocating balance. This reduced the piston speed to an important extent. The use of rubber drawbar springs prevented transmission of longitudinal vibrations to the train.

An Advantage of High Platforms

Mr. W. K. Wallace emphasised the advantages of light reciprocating parts for high-speed engines. He referred also to the tendency on the part of Traffic Departments to accelerate trains generally without having sufficient engines available which had been specially designed for the higher maximum speeds involved. The L.M.S.R. Class "5" locomotives, although designed for mixed traffic purposes, were very fast engines, and the wheel lifting tests had shown what effect these engines might have on the track when run at high speeds. He pointed to a hitherto unrecognised advantage of the high platforms of British railway stations in that they forbade the use of

very large outside cylinders and compelled mechanical engineers to resort to multi-cylinder locomotives for increased power.

Mr. C. Gribble, who was Chief Engineer of the British Bridge Stress Committee of 1928, recalled the position with regard to hammer-blows on locomotives at that time. Then the best 4-cylinder engines were the "Claughton" 4-6-0 class of L.N.W.R. design which had no hammer-blows of the engines actually tested, the worst 4-cylinder engine gave maximum wheel hammer-blows of 4½ tons. There was also a 3-cylinder design which produced a 6½-ton wheel hammer-blow, but there were other 3-cylinder engines with negligible hammer-blows. As to 2-cylinder engines, the worst produced a hammer-blow of 20 tons for the whole engine and 6 tons on an individual wheel, and the best had as low a hammer-blow as 1 ton. Thus, even before the high speeds of the pre-war period, there was wide variation in the method of balancing British locomotives, and it was only with the prospect of a perpetuation of the medium speeds of those days that the Bridge Stress Committee had recommended that at 5 r.p.s. the axle hammer-blow should not exceed one-quarter of the static load, or 5 tons as a maximum, and the hammer-blow of the engine as a whole should not exceed 12½ tons. As compared with the figure taken by Mr. Cox of 8 r.p.s., the highest speed attained in the tests carried out by the Bridge Stress Committee was 7·35 r.p.s.

Sir Alan Mount, who had presided over the Pacific Locomotive Committee, also defended those remarks of the committee's which had been criticised in one of the papers. Referring to some recent derailments, he suggested, as an indication of the importance of reciprocating balance, that negative hammer-blows, such as was mentioned in one of the papers, might have been a contributory cause.

Mr. E. C. Poultney pointed out that the change that had taken place during recent years from the use of engines having inside cylinders to those having outside cylinders, both in this country and in India, had a profound bearing on the subject of balancing, for an outside cylinder engine required 50 per cent. more balance weight to balance given reciprocating masses. He presented some diagrams to illustrate this point. One showed in graphic form the increase in the magnitude of the balance required as between inside and outside cylinder engines, and the second diagram showed the effect of these changes on hammer-blows at speeds up to 6 r.p.s.

Mr. J. J. C. Patterson pointed out the economic implications of increased speeds, and the alterations that would have to be made in locomotive design with special regard to balancing should high speeds become prevalent again in the future. He also stressed the importance of speed, and referred to the smallness of the permissible oscillation of a locomotive in the longitudinal plane. A movement as small as 1·5 deg. on either side of the mid-position might be alarming.

Major Watson, briefly replying to the discussion, mentioned as an immediate advantage of the tests described in the paper of which he was joint author the fact that, as Bridge Engineer of the M. & S.M.R., he had been able to authorise the use, after re-balancing, of engines on particular sections of lines where previously they had been prohibited. Mr. Cox pointed out that in his paper he dealt with nosing only insofar as lack of reciprocating balance produced that motion. There was, however, nosing set up by track irregularities which was often of greater importance.

* "Hammer-Blow in Locomotives: Can it not be abolished altogether?" By Sir Harold Nugent Colam, B.A., M.Inst.C.E., and Major John Douglas Watson, R.E., B.Sc.(Eng.), Assoc.M.Inst.C.E., and "Balancing of Locomotive Reciprocating Parts." By E. S. Cox, A.M.I.Mech.E.

January 2, 1942

Western Australian Government Railways in 1940-41

A financial statement in advance of the annual report

The statement of financial results of the Western Australian Government Railways for the past five years, issued by the Commissioner of Railways, Mr. J. A. Ellis, in advance of his annual report for the year ended June 30, 1941, indicates a deficit, after paying working expenses and interest, of £216,342, an improvement of £84,019 on the immediately preceding year. The loss for 1938-39 was £313,226, so that the improvement has been progressive over the three years, 1938-39 to 1940-41.

Earnings for the twelve months totalled £3,571,828, an increase of £15,846 on 1939-40, and working expenses amounting to £2,757,891, decreased by £70,438 showing the result of the tight hold which has been kept on expenditure generally to meet existing conditions. The capital account increased by £58,081, and, as a consequence, the interest bill was £2,265 greater, the debit on this account being £1,030,279. The operating ratio was 77.21 per cent., an improvement of 2.33 per cent. on the previous year's figure. Earnings showed a return on capital of 3.04 per cent.

Higher Passenger Earnings

The increase in earnings is attributed solely to coaching earnings, which rose by £100,631, whereas goods earnings decreased by £93,366. The incidence of petrol rationing has exerted a favourable influence on travel by rail, and interstate passenger traffic has also been a vital factor in the increase, special trains to and from the Eastern States being now practically a regular feature each week. Passenger journeys totalled 11,518,216, as compared with 10,793,396 in 1939-40.

6,277,745 train-miles were run during the year, an increase of 15,308. Earnings per train-mile averaged 136.55d., working expenses 105.43d., and interest 39.39d. On the other hand, the ton-mileage statistical statement of paying goods and livestock traffic shows the average earnings per ton-mile for year to be 1.75d., a decrease of 0.02d. on the previous year.

The following are the principal items taken individually:-

Local coal, coke, shale, and charcoal decreased in tonnage hauled from 226,837 tons to 210,524 tons, with a decrease in earnings from £146,941 to £139,747. The earnings per ton-mile, however, increased from 1.26d. to 1.28d. Moreover, the wool tonnage decreased by 2,734 tons and the ton-mileage by approximately 860,000 ton-miles, due largely to dry conditions in the country districts affecting the wool clip. On the contrary, the hay, straw, and chaff tonnage and ton-mileage showed increases of 886 tons and 448,116 ton-miles, respectively, the latter being due to an increase of 7.56 miles in the average haul. Dry conditions in the outer agricultural and pastoral districts were doubtless the principal causes of the increases.

More Wheat and Timber Carried

Wheat—the highest single item in the statement—contributed a tonnage of 681,758 tons, as compared with 671,453 tons. Owing to a decrease of 6.23 miles in the average haul, however, ton-mileage dropped by 2,727,247 ton-miles, with a corresponding reduction of approximately £3,000 in earnings. But a large quantity of wheat still remained in the country at June 30, 1941, the haulage of which will, no doubt, benefit the finances of the current year. Also, a heavy increase is shown in

the carriage of local timber, the tonnage increasing from 298,424 tons to 348,063 tons, with an increase of over 5,000,000 ton-miles. The average haul of this commodity also increased by over 2 miles, and earnings were £46,000 better.

Fertiliser tonnage decreased by 20,000 tons and 4,000,000 ton-miles, with a reduction in the average haul from 137.65 miles to 133.52 miles, due principally to smaller acreages under wheat cultivation owing to existing conditions. Another indication of the dry season experienced is shown by the water haulage, 5,242 tons being hauled for private purposes. Recent abundant rains throughout the bulk of the State should preclude a repetition of this condition during the current financial year. Miscellaneous traffic, such as gravel and road metal, showed a decreased tonnage of 60,000 tons and a reduction of over 600,000 ton-miles.

"A," "B" and "C" classes of freight all showed decreased tonnages and ton-mileages, as also did the first and second classes. Prevailing conditions are responsible for the reductions in these items, and as they are the classes of traffic to which the department looks to recoup itself for the large quantities of non-paying traffic handled, the reduced tonnages have had a serious effect on the total goods revenue. Meanwhile, however, livestock tonnage increased from 110,248 tons to 118,940 tons and ton-mileage from 12,311,811 to 13,777,751 ton-miles. The average haul also increased by 4.17 miles and earnings by £12,454.

The foregoing review shows that despite war conditions the department's operations during the past year have not been unsatisfactory, and with favourable seasonal prospects now in view for the coming harvest season, it is probable that the results for the current year will be equally favourable.

Staff and Labour Matters

Railway Wages

Further discussions took place between representatives of the Railway Executive Committee and the railway trade unions on December 11 in connection with the claims of the trade unions. The National Union of Railwaymen is claiming a 60s. minimum rate of pay, the Railway Clerks' Association is asking for improvements in the salaries of the lower classes of male staff and for increases for female staff, and the Associated Society of Locomotive Engineers & Firemen is asking for increases for junior engine cleaners. No agreement was reached on the claims and a meeting of the Railway Staff National Council was arranged for December 19, at which the claims would be further considered.

Engineering and Shipbuilding Wages

The National Arbitration Tribunal has awarded an increase of 5s. a week in the bonus payable to shipbuilding and engineering workers. The claim of the Federation of Shipbuilding & Engineering Unions, which was for a "substantial increase," was heard by the tribunal on November 28. The claim of the Engineering Joint Trades Unions (42 unions) was also for a substantial increase and was heard on December 5. The Amalgamated Engineering Union and the National Union of Foundry Workers

claimed an increase of 4d. an hour on basic rates, and this claim was heard in public on December 8.

The Tribunal states that consideration was given to present wage standards compared with those existing for some years before the war. The effect of the application of the Essential Work Order and the fact that anomalies of earnings in the industries can be adjusted by existing machinery also came under review. Account was taken of the industries agreement on the national bonus as a means of adjusting wages, which had been in operation for many years. About 2,000,000 workpeople are affected by the two decisions of the tribunal.

Questions in Parliament

Below are summarised Answers to Questions in Parliament affecting transport. The Minister concerned and the date of the Answer are given in parentheses.

Service Personnel Railway Tickets

I regret that I cannot agree to the proposal to issue railway tickets at a maximum fare of 10s., available for 48 hours' leave period, to enable Service personnel to visit their homes more frequently, especially at a time when it is necessary to reduce the volume of passenger travel. (Colonel J. J. Llewellyn, Joint Parliamentary Secretary, Ministry of War Transport, December 11.)

Cheap Fares

Cheap fares are available for travel on all trains except the Cornish Riviera Express. Pressure on that service to and from the West of England is very heavy, and I do not consider this restriction unreasonable. (Colonel Llewellyn, December 11.)

Canteens at Stations

I am satisfied that adequate canteen facilities now exist for members of the armed Forces at all the main London and provincial stations. Canteens are in existence either at or in the immediate vicinity of 119 railway stations throughout the country, including the ten principal London stations. At the majority of these stations cloakroom, washing, and lavatory facilities are also available free to troops. Sleeping or rest rooms for troops are available at or in the immediate vicinity of 69 of the most important stations. At present amenities are in process of being established at seven stations in addition to the above, and the existing amenities are being enlarged at five of the above stations. (Captain D. H. Margesson, Secretary of State for War, December 16.)

Arrangements for Soldiers Leave

Existing instructions provide that railway transport officers should be consulted as to the most convenient services for men going on leave, and that where soldiers have long distances to travel, they should depart as early as possible on the day on which their leave begins. (Captain D. H. Margesson, December 16.)

Government Work

The greater part of the charges raised by the railway companies against Government Departments for work done in railway workshops is for wages and materials and the payments in respect of these items are not included in gross receipts for railway workings. Payments covering workshop expenses are credited to maintenance expenditure and supervision is credited against the sums shown as "other items of receipts and expendi-

January 2, 1942

THE RAILWAY GAZETTE

35

ture included in the pool (net) " given in the estimates of pooled revenue receipts and expenses. Information as to the amounts paid by the various departments for work done in railway shops is not readily available, but under the new financial terms of control the net result is credited to the Government's control account. (Colonel Llewellyn, December 17.)

Traffic Receipts

A return showing the gross railway traffic receipts for 1941 will be issued as soon after the conclusion of the year as possible. (Colonel Llewellyn, December 17.)

Railway Costs

I am making inquiries as to what was the average cost per ton to railway companies of steel rails, coal, and sleepers at the outbreak of war and at the most recent available date in 1941. (Colonel Llewellyn, December 17.)

Spares for Public Vehicles

Measures have been taken to accelerate the supply of spare parts to operators of public transport vehicles in the Ayr district, so that war and other workers could be assured of regular, speedy, and adequate accommodation in getting to and from their work. (Colonel J. J. Llewellyn, December 17.)

Pilfering on Railways

Precise information is not available but I am told that the loss of towels, soap, etc., through pilferage is large. The difficulty in obtaining replacements has resulted in the curtailing of the supply of these articles on trains and if pilfering continues it may become impossible for the railways to continue to provide these requirements. (Colonel Llewellyn, December 17.)

Parliamentary Notes**Railway Sleeping Berths**

Lord Balfour of Burleigh in the House of Lords on December 16 asked the Government whether, in view of the announcement of the Minister of Transport that he had taken control of railway sleeping berths, the House could be given an assurance that applications from members of the two Houses of Parliament would have every consideration, and whether the Government would not consider, in order to meet as fully as possible the requirements of all travelling on urgent business, the provision of additional third class sleeping compartments in replacement of first class sleeping compartments. He said that they must all agree that the necessities of coal traffic and heavy freight traffic had rightly led to the reduction of passenger trains, and in particular of the number of sleeping cars which it was possible for the railways to carry.

Last October considerable restriction took place, and since then there had been a good deal of difficulty in obtaining accommodation. He thought it was possible that public business had suffered. He asked the Minister whether he was going to differentiate in any way between the different classes of people who were travelling on Government business. There were also business people who had important work to carry out for the Government and—last, he supposed, in wartime—there were the members of the

general public, who still had urgent business on which they must travel, and on which they were entitled to travel with as much comfort as war exigencies permitted. How was the Minister going to evaluate the different claims of all those varying classes of people travelling on Government business? How was he going to settle which was more important where the claims came into competition? The present system was not going to work satisfactorily because it had led to this position, that no member of the public who had not a claim to be travelling on Government business could ever be sure of getting a sleeper at all for any particular date. That was not a good state of affairs, because it would be rather destructive of public morale if members of the public were left with the impression that, however important their urgent private affairs might be they were to be subordinated to the business of a junior official travelling on, perhaps, routine Government business.

The real trouble, he thought, was that no member of the public could rely upon getting a sleeper at all. He had been in the habit of making the journey to Scotland every week, and, as it happened, he had Government business at both ends, consequently he was one of the people who might be inconvenienced by the arrangement he was suggesting. On the particular train in which he was interested—the 10.15 p.m. to Waverley from King's Cross—there were at present two first class sleepers with a total of 20 berths and two third class sleepers with 28 berths each, sometimes a few more. That was a total of 20 first class and 56 third class, making 76 in all. At present there were certainly not enough first class berths to go round, but there would be enough third class berths unless they were all kept at the disposal of the Government. He suggested that the two first class sleepers should be replaced by third class sleepers. That would give a total of 112 berths instead of 76, which, he believed, would meet adequately the needs of the situation. The alternative was that the Minister ought not to put his official control on the whole of the first class sleepers, but leave a certain number free for allocation in advance by the railway companies. He had been travelling third class for fifty years, the last few in third class sleepers, and he did not think the hardship of having to travel in a third class sleeper instead of a first class sleeper was anything to grumble at in time of war.

Lord Leathers (Minister of War Transport) said members would have received the notice which the Leader of the House had handed out describing the arrangements for sleeping berths for members of both Houses who had to travel overnight to or from Westminster. The Government had taken over the whole of the sleeper accommodation on certain trains on which the demand for sleeping berths was heaviest, and members who wished to have sleepers reserved for them on those trains should notify the fact as early as possible, and in any case 48 hours before the time of departure of the train. The period of 48 hours was specially urged so that the Ministry of War Transport might have an opportunity of freeing, if there were then a fair number of berths yet available, some of those berths, at any rate, at that earlier time to the railway companies for issue to the travelling public. If at that time, 48 hours before the train time,

there was seen then to be already so many heavy bookings that the Ministry must hold even that small balance in order to ensure that those who really should, by virtue of their business, be allowed to travel, they would have to withhold from the general public, right up to, say, four o'clock on the day of travelling, the release of those unbooked sleepers to the travelling public. On other trains the public would book in the usual way through the railway companies. He was taking steps to see that attending members of both Houses of Parliament, high Service officers, officials, and others travelling on Government business should have the first call on available accommodation. It was going to be a very difficult task to assess the priority, and he was not able to give the House any definite measure of that at the moment, but most of the people travelling on business were travelling on business linked with one or other of the Government Departments. The Ministry of War Transport was better able than the railway companies to check up so that it might be seen in what priority the need arose in the case of each of these people. He was entirely in agreement with the suggestion that third class sleepers should be substituted for first class sleepers. They had not made any cut at all in the number of third class sleepers. When it was seen by experience that that which remained was not enough to meet the requirements, then they would certainly consider substituting third class sleepers for what remained of the first class. He thought it wise to do that by steps.

Lord Rushcliffe asked Lord Leathers to deal with the point that a certain number of berths should be left unallocated so that the general public might know whether or not they were likely to get a berth.

Lord Leathers said that the difficulty was to know whether they should reserve any for the general public at all. If the requirements, as they were showing themselves 48 hours before the departure of the train, indicated that they would not need to hold as many berths as there were in hand, they would release a number to the railway companies at that earlier time for the general public; but if, at that time, there seemed to be only very few unbooked, they would be bound to hold on to them until four o'clock on the day of the train's departure in case urgent applications came along which had to be dealt with.

Lord Balfour of Burleigh said he heard with astonishment the Minister's statement that third class sleepers were not always full. He thought the Minister would have a difficulty in giving an answer which supported the statement he had made. He did not deal with the point that members of the general public could have no certainty whatever of ever getting a sleeper. That meant that there were not enough. If there were not enough, why not substitute the third for the first, and without an addition to rolling stock, get 112 instead of 76? That was the point he pressed on the Minister.

Lord Leathers said he would like to emphasise that if it was found that the first class sleepers were cutting out a number of people who could be accommodated for sleeping if third class sleepers were put in, third class cars would be substituted. Beyond that he could not go.

RAILWAY AND OTHER MEETINGS

Central Uruguay Railway Co. of Monte Video Limited

The ordinary general meeting of the Central Uruguay Railway Co. Ltd. was held at River Plate House, Finsbury Circus, E.C., on December 17, 1941.

The Chairman, Brig.-General F. D. Hammond, C.B.E., D.S.O., who presided, said that the first three months of the financial year had each shown an operating loss, and though takings had moved slightly upwards they were still low. The company had consequently introduced a 10 per cent. increase in tariffs from October 15. Traffics improved with the result that at the end of the year there was an increase of 4·8 per cent. in currency, or 9·8 per cent. in sterling, receipts, the peso being pegged at 31·45d., against an average of 29·5d. last year.

Unfortunately the rise in expenditure was higher than that in gross receipts. The average cost of fuel oil rose by no less than 65 per cent., and, although substantially less was used owing to the full use of motor coaches through practically the whole year, the total bill was larger by some £80,000.

The question of renewals was probably the most important and difficult problem facing their railway today. The most urgent section now calling for renewals was the Nico Perez line, 199 kilometres long, where the rails were now over 50 years old

and in an overworn condition. Rails were, however, now unobtainable and so the only way to keep this section going was to reinforce these old rails with good sleepers and sound ballast. But this was clearly only a stop-gap; the process could not be continued indefinitely. He had quoted the Nico Perez line as it was the worst example, but there were other sections, such as the Northern Extension, where the rail situation was only a little better. Further, due to the necessarily restricted expenditure in the past, a considerable proportion of the sleepers and ballast throughout the system must be renewed in the near future, quite irrespective of the age of the rails.

He would like to represent this problem of renewals from another angle. In the years 1923-24 to 1930-31 it was found necessary to spend an average of £210,152 a year on renewals of all kinds. The depreciation which took place each year on the company's wasting assets had been placed at about £150,000 a year. As against these figures of the actual expenditure found necessary in previous years and the estimated annual wastage, an average of only £86,562 a year had been spent in the ten years 1931-32 to 1940-41. These figures corroborated the engineer's reports

that this large amount of leeway must be made up if the railway was to be kept in a fit state to do its work. This was of paramount importance and all available resources must be devoted to that purpose.

Turning to the present financial year, the company would not receive the special guarantee from the Uruguayan Government for the Eastern Extension as that had lapsed, and the exchange differences would probably be adverse. Also there would certainly not be any credit from income tax adjustment. These three items together totalled over £70,000 and provision would quite likely have to be made for income tax. Receipts had been good for the first five months and so far they had no indications of any factors likely to cause a setback, but any attempt to prophesy in times like these was dangerous. What was certain was that the cost of all stores including fuel, was still rising, and their expenses were therefore bound to be heavier.

As in the past, their relations with the Government had remained excellent, and Uruguay had shown in the diplomatic field that she was firmly wedded to those diplomatic principles for which they were fighting.

The Chairman added:— We have received the good news this morning that the quarry plant, which has been two years on order and has struggled through manufacturing troubles at times, has now reached Monte Video, thanks to the Royal Navy.

The report was unanimously adopted.

South Indian Railway Co. Ltd.

The annual general meeting of the South Indian Railway Co. Ltd. was held on December 22, at Fairacres, Roehampton Lane, London, S.W.15. Sir Ernest A. S. Bell, C.I.E., Chairman and Managing Director of the company, presided.

The Chairman, in the course of his speech, said that the vacancy caused by the death of Sir Percy Rothera had been filled by the appointment of Mr. C. A. Muirhead, C.I.E., who had vacated the post of Agent & General Manager in India to take up this office. His intimate knowledge of the administration in India, and up-to-date acquaintance with Indian conditions generally, would be of great assistance to the board. To fill the vacancy in India, the board had appointed Mr. J. F. C. Reynolds, M.C., Chief Transportation Superintendent, as Agent & General Manager. There had been a change in the designation of the company's Consulting Engineers. The firm of Messrs. Robert White & Partners had amalgamated with the firm of Messrs. Sir John Wolfe Barry & Partners, a very well-known firm with Indian Railway connections, with effect from July 1. The combined firm, now designated Messrs. Wolfe Barry, Robert White & Partners, had been appointed Consulting Engineers to the company.

Ticketless travel had been responsible for heavy losses to railways in India, and had been for many years recognised as one of the major problems confronting railway administration. It had been considered that the only effective means of dealing with the problem had been to revise those sections of the Indian Railways Act relating to ticketless travel. The original proposals which had been put forward by the Railway Board had not met with sufficient support from members of the Legislature, but it was satisfactory to know that agreement had now been reached, and that the new legislation had been brought into effect.

The rate of Excess Profits Tax in India

was 50 per cent. for the tax years 1940-41 and 1941-42, and 66½ per cent. for the tax year 1942-43. The rate in this country was 100 per cent. The United Kingdom tax authorities had agreed to the 6 per cent. statutory basis for standard profits; it was not yet known what the ultimate figure would be in India. The Agent & General Manager had been instructed to claim the statutory basis in India also, which in that country was 8 per cent.

Gross earnings of the railway were up by Rs. 58½ lakhs on those of the previous year, an increase of 11½ per cent.; working expenses were down by nearly 9 lakhs, a decrease of 2·95 per cent.; and net earnings up by 67½ lakhs, an increase of 33½ per cent. Increases in gross earnings had been recorded under all heads, but by far the largest increase was in respect of goods traffic, which had increased by 16 per cent. over last year. The company's share of surplus profits, viz., Rs. 5,95,482, had been the highest since the year 1929-30, but it had to be borne in mind that, in a measure, this high figure had been due to the decrease in the amount spent on replacements and renewals, which would have to be made good after the war.

The war had overshadowed all questions of development, and the company performance had been compelled to concentrate, and get the utmost advantage from the undertaking as it was, and to maintain it to the best of its ability with the resources available. It was not advisable to give details of what the railway was doing to help the war effort, but it was substantial, not only in respect of staff released for war service, but in many other directions. The Shorana-Nilambur Railway had been dismantled. It had since been decided to close the Madura-Bodinayakkanur Branch on January 1 next.

The approximate results of working for the first half of the current year, up to September 30, 1941, were as follows:— Gross earnings, Rs. 3,28,44,000, as against

Rs. 2,82,37,000 in the corresponding period last year, an increase of 46 lakhs; working expenses had decreased by nearly one lakh, with the result that the estimated share of surplus profits for the half-year amounted to Rs. 5,85,000, as compared with Rs. 2,86,224.

The report and accounts were adopted.

Pullman Car Co. Ltd.

At the annual general meeting of the Pullman Car Co. Ltd., held in London on December 24, Sir Follett Holt, K.B.E., the Chairman, said that fortunately, after protracted negotiations, the directors had been able to agree with the contracting railways what was considered to be a fair arrangement with the result that the company's obligation to the holders of the 4½ per cent. debenture, the heavy war risk insurance, and the loss on working had been met. The company would be able to accumulate, he hoped, sufficient funds to meet the heavy cost that would be entailed to re-equip its rolling stock.

The non-interest bearing debenture, which had been devised by the authorities to insure that those in charge of the company would in the future faithfully carry out the arrangements, need cause no alarm. It was necessary each year to place £38,000 aside to cover depreciation, whether the cars were on the road or inactive. It was known also that the cost of the cars actually on order and similar requirements as time passed would have to be met, and as these payments were made so would the debenture disappear. In any other course, the railways, as owners of the non-interest bearing debenture, would have the power to intervene. The railways were as anxious as the company that the Pullman company should be in a position to restore its service after the war.

January 2, 1942

THE RAILWAY GAZETTE

37

£20,000 Waste Paper Contest

The largest campaign for the salvage and collection of waste paper that Britain has ever known opened on January 1 and continues until January 31. Britain's munitions factories and Britain's charities will benefit by this campaign. Our factories are desperately short of the products made from waste paper, books, and cartons. Britain's charities are hard hit by the war. As a result of this campaign they will receive £20,000, the sum that the Waste Paper Recovery Association is providing as prize-money in a nation-wide Waste Paper Contest. The prize money has been donated by a group of public-spirited citizens.

The country has been divided into 20 areas. Each area will have ear-marked for it a prize total of £1,000. This amount will be divided among the local authorities



in each area (city, town, urban, or rural) which between January 1 and 31 inclusive collect most by weight of waste paper and cardboard per head of the population, based on the latest local Food Officer's return. For the purpose of this contest Scavenging Districts in Scotland which normally make separate salvage returns to the Ministry of Supply will be treated as separate districts.

The total prize of £1,000 allocated to each of the 20 areas will be divided among successful authorities as follows: 1st prize, £500; 2nd prize, £250; 3rd prize, £100, and three consolation prizes of £50 each.

It is a condition of the contest that one-half of any prize money won shall be donated by the local authority to one or more of the following national charities: The Red Cross, Mrs. Churchill's Red Cross Aid to Russia Fund, R.A.F. Benevolent Fund, Soldiers', Sailors' and Airmen's Families' Association.

The remaining half must be given by the local authority to any local charity or charities designated by the successful local authority.

Chairmen of salvage committees, clerks to councils, and salvage officers should begin at once to organise their New Year drive, and a certificate showing figures of waste paper and cardboard collected between January 1 and 31 inclusive should be sent to the Waste Paper Recovery

Association Limited, 154, Fleet Street, London, E.C.4, to arrive not later than February 9, 1942. Local authorities will include in their figures all waste paper and cardboard collected by waste paper merchants and voluntary organisations from non-council sources within the area of the Local Authority.

So that there shall be no undue use of paper no forms will be used in this competition. All that the Waste Paper Recovery Association wants is a certified record of tonnage collected in the district of every local authority in the country.

The judges of this competition are: Sir Vyvyan Board, Chairman of the Salvage & Recovery Board, Ministry of Supply; Sir Patrick Hastings, K.C.; Mr. Sidney T. Garland, General Manager, Waste Paper Recovery Association Limited.

The following is the list of the 20 areas, shown on the accompanying map, into which the country has been divided:

Area 1, Southern Scotland; Area 2, Northern Scotland; Area 3, Northumberland, Cumberland, Durham; Area 4, Yorkshire; Area 5, Lancashire, Westmorland; Area 6, North Wales, Shropshire, Cheshire; Area 7, Leicester, Notts, Derbyshire, Rutland; Area 8, Lincolnshire; Area 9, Warwickshire, Worcester, Staffs; Area 10, South Wales, Hereford; Area 11, Gloucester, Somerset, Wiltshire; Area 12, Devon and Cornwall; Area 13, Dorset, Hampshire, Isle of Wight; Area 14, Bedfordshire, Northampton, Hertfordshire, Hunts; Area 15, Norfolk, Suffolk, Essex, Cambs.; Area 16, Berks, Bucks, Oxfordshire; Area 17, Kent and Surrey; Area 18, Sussex; Area 19, Greater London (London Administrative Area); Area 20, Northern Ireland.

"Stamp" Medal Awards

Two Scottish L.M.S.R. employees were on December 18 presented with the "Stamp" Medal for bravery by Sir Thomas Royden, Chairman of the company. When a passenger at Dalry station alighted from the wrong side of a train and fell on to the track, Station Foreman Arthur Irving jumped down to rescue him. At that moment Irving heard a

train coming, glanced up, and saw the engine headlights coming round the bend of the platform. Realising that it was too late to reach safety, Irving pulled the passenger clear of the lines, and with him lay in the space between the stationary train and the express. Afterwards Irving, who is a qualified ambulance man, rendered first aid to the passenger, before handing him over to a doctor who had been summoned to the station.

Passenger Shunter James McLeod, of Ardrosson, acted with great courage in somewhat similar circumstances. In this case a passenger had fallen on to the line during the black-out period just as a train was due. McLeod immediately jumped on to the track and was able to lift the passenger to the safety of the platform just before a goods train passed through. From the time the passenger fell, until he was taken to safety, only one minute elapsed.

The Stamp Medal was inaugurated by the late Lord Stamp and is given to L.M.S.R. men in recognition of acts of bravery and devotion to duty or for particularly meritorious and efficient service.

HONG KONG AND SHANGHAI BANKING CORPORATION—In view of the interruption of communications with Hong Kong and all business operations in the colony steps have been taken to transfer control of the corporation from Hong Kong to London. Under the authorisation of the British Government, and in accordance with the wishes of the Chief Manager of the bank, as communicated by the Governor of Hong Kong, Mr. Arthur Morse, the London Manager, has assumed the position of Acting Chief Manager, and all branches outside Hong Kong and enemy occupied territory are being instructed to accept orders from him and not from Hong Kong until further notice. It was recorded in our issue of December 12, at page 631, that the Governor of Hong Kong had granted authority for the removal of the head office of the corporation from the colony as a measure of safety. The corporation acts as local joint agents for the Shanghai-Hangchow-Ningpo Railway and the Nanking-Shanghai Railway.



The "Stamp" Medallists with Sir Thomas Royden and Mr. G. L. Darbyshire

Left to Right: Mr. G. L. Darbyshire, Chief Officer for Labour Establishment, L.M.S.R.; Station Foreman Arthur Irving; Sir Thomas Royden, Chairman, L.M.S.R.; and Passenger Shunter James McLeod.

Notes and News

Collision on L.M.S.R.—A collision occurred on the L.M.S.R. near Eccles (Lancs.) on December 30, causing a number of casualties some of which were fatal.

Engine Derailed near Ulster-Eire Border.—The engine and one of the two carriages of a newspaper train from Belfast to Dublin were derailed near Dundalk on Sunday. No one was injured. The line was blocked for some hours.

Permanent Way Tests, L.M.S.R.—Mr. W. K. Wallace, Chief Civil Engineer, L.M.S.R., is presenting a paper entitled "Permanent Way Tests and Practice on the L.M.S.R." to the Institution of Civil Engineers in London on Tuesday, January 27, at 2 p.m.

French Tramway Systems.—The Compagnie Générale Française de Tramways, an important French tramway company which owns systems at Marseilles, Havre, Nancy, and Orleans, as well as in a number of smaller places, decided last November to increase its share capital from fr. 88,000,000 to fr. 110,000,000.

Mersey Tunnel Application.—The Lord Mayor, aldermen, and citizens of the city of Liverpool and the Mayor, aldermen, and burgesses of the borough of Birkenhead are applying to the Minister of War Transport for an Order under the Special Enactments (Extension of Time) Act, 1940, in respect of duties imposed by Section 22 (as to promotion of future Bill) of the Mersey Tunnel Act, 1933.

British Automatic Co. Ltd.—The directors have decided, in order to help the war effort, to accelerate their normal programme of scrapping of obsolete types of automatic machines. This will provide approximately 290 tons of cast iron and approximately 2½ tons of much needed aluminium, in addition to their gift last year of 4½ tons of aluminium in answer to Lord Beaverbrook's appeal.

Compulsory Accident Insurance in Spain.—Under a decree published in the Madrid *Boletín Oficial* of October 4, the system of compulsory insurance against accidents which has been in force for some years for passengers by rail, is extended to cover passengers by all legally-established motorbus services and regular air services. The minimum compensation payable in case of death or permanent disablement is 30,000 pesetas, with smaller amounts for cases of injury.

Great Southern Railways (Eire).—For the 49th week of 1941 the Great Southern Railways Company reports passenger receipts of £38,139 (against £31,866), and goods receipts of £77,467 (against £67,170), making a total of £115,606, against £99,036 for the corresponding period of the previous year. The aggregate receipts to date are passenger £1,947,104 (against £1,720,536), goods £2,750,558 (against £2,427,369), making a total of £4,697,662 (against £4,147,905).

Italian Electrification.—The conversion of the Bologna-Verona main line from steam to electric traction was completed early in November, and the electric service over that section was inaugurated on November 5, according to recent advices from Switzerland. The line is 114 km. (71 miles) long. Reports from Italy indicating that electrification has now been com-

pleted through to Trento, giving an all-electric route between Reggio Calabria in the south and Brenner pass in the north were recorded at page 570 of our November 28 issue.

Barcelona Bus Services.—The Spanish Minister of Public Works, Sr. Alfonso Peña, was present at the inauguration of two new bus services in Barcelona on October 7. The first was a service of vehicles fitted with gas producers and running between the Paseo de Gracia and the San Pablo Hospital. The other is a new line of trolleybuses to run between the Plaza de Sepulveda and the old Plaza de Constitución in the San Andres district, a distance of about 10 km. This service was initiated with a fleet of 25 trolleybuses, and the running time for the route is about 25 min.

Railway Rates Tribunal Sittings.—The court will sit on Tuesdays, January 20, February 17, March 24, April 21, May 19, June 23, July 21, October 20, November 17, and December 15, 1942, to hear applications as to the granting of new, or the reduction of existing, exceptional rates. It will also sit on Tuesdays, January 27, April 28, July 28, and October 27, 1942, to hear applications as to classification of merchandise; applications as to reduction to be made from standard charges where damageable merchandise is carried under owner's risk conditions; and applications as to rebates under the Railway Freight Rebates scheme.

London Transport Extension of Time Order.—The Minister of War Transport has made the London Passenger Transport Board (Extension of Time) Order, 1941 (S.R. & O., 1941, No. 1757), extending by three years the time limited (i) by Section 5 of the London Passenger Transport Act, 1936, for the commencement of the running of trolley vehicles on certain routes in Hampstead, Finsbury, Islington, Barnet, Cheshunt, and Enfield; (ii) by Section 29 of the 1936 Act for the completion of certain works authorised by that Act in Kensington, Shoreditch, Stepney, Poplar and Bethnal Green, West Ham, Leyton, Wanstead, and Woodford & Ilford; and (iii) by Sections 29 and 33 of the London Passenger Transport Act, 1938, for the compulsory purchase of lands.

The Institute of Transport.—The report of the Council for the year ended September 30, 1941, states that at the first of the luncheon meetings held during the year, the then Minister of Transport, Lt.-Colonel J. T. C. Moore-Brabazon delivered an address and he also attended a subsequent luncheon at which Mr. G. S. Szlumper (Past President) spoke on "Transport after the War." The centres abroad successfully maintained their activities, but the local sections and graduate and student societies did not, generally, find it practicable to hold regular meetings. The East Midlands Section, by holding lunch-hour meetings at Nottingham and Derby were able to carry out a satisfactory programme, and the Metropolitan graduate and student Society continued the previous year's practice of meeting on Saturday afternoons. The examinations were held on May 5, 6, and 7, 1941. Centres were established at London, Belfast, Birmingham, Bristol, Glasgow, Leeds, and Manchester; also in Argentina at Buenos Aires, in India at Bombay, in Ceylon at Colombo, in Kenya at Nairobi, and in South Africa at Cape Town, Durban, and Johannesburg. The council, after consultation with the Directorate of Army Education, arranged for correspondence courses in subjects of the

Institute examinations to be made available, at nominal fees, to members serving in the Forces whose studies had been interrupted by calling up. The membership of the Institute at the end of the year was 4,953.

Partition of the Bohumin-Kassa Railway.—It is reported that a further agreement has now been reached between Slovakia, Germany, and Hungary, the three countries which now share ownership of the Bohumin-Kassa Railway. Slovakia, to which for geographical reasons fell the main portion of the line, has agreed to take over the financial charges in respect of the previous company's bondholders, who, because of the partition of the territories through which the railway runs, have become foreigners in the respective zones. To this end Slovakia agreed to pay 28,000,000 Slovak Kronen to Germany and 70,000,000 Slovak Kronen to Hungary. Previous references to the purchase of this railway by the three Powers were made in our issues of September 26 (page 304) and November 14 (page 495).

The Wuppertal Railways.—The Wuppertaler Eisenbahnen Aktiengesellschaft absorbed in 1940 the Elberfeld railway group, formerly owned partly by Siemens & Halske, and consisting of the Elektrische Straßenbahnen Barmen-Elberfeld A.G. (Barmen-Elberfeld Electric Tramways Company); the Wuppertaler Schwebefähn A.G. (Wuppertal Suspended Railway Company); and the Bergische Kleinbahnen A.G. (Bergisch Light Railway Company). In connection with the absorption of this group, the company's share capital was increased from RM. 5,000,000 to RM. 10,000,000, of which RM. 9,700,000 is owned by the Wuppertal Town Council and RM. 300,000 by the Schwelm Town Council. While working receipts for 1940, at RM. 16,660,000, were stated to show a considerable increase over the combined 1939 working receipts of the former group of companies, no comparative figures were published. The net profit for 1940 amounted to RM. 490,000, and a dividend of 4 per cent. was paid. In the early days of the war it was announced that traffic had been discontinued on the famous Barmen-Elberfeld suspended railway, and it is not known whether it has ever been resumed.

Contracts and Tenders

The East Indian Railway has placed a contract, to the inspection of Messrs. Wolfe Barry, Robert White & Partners, with Jay Engineering Works Limited for post type signal reversers.

The South Indian Railway has placed the following contracts to the inspection of Messrs. Wolfe Barry, Robert White & Partners:

Ibbotson Bros. & Co. Ltd.: 25 helical springs; H. J. Skelton & Co., Ltd.: mild-steel boxes for axle guards.

It is reported in the *Railway Age* that the National Railways of Mexico are in the market for 200 50-ton tank wagons. Details of a number of previous purchases by the National Railways of Mexico were given in THE RAILWAY GAZETTE last week.

The Aluminium Information Bureau has removed to 109, Jermyn Street, London, S.W.1. (Telephone: Whitehall 5411.) The technical and advisory services of the bureau will, as hitherto, be available to deal with problems submitted concerning the working, treatment, and application of aluminium and its alloys.

Railway and Other Reports

Uruguay Northern Railway Co. Ltd.—Gross receipts for the year to June 30, 1941, were £13,960 (£13,222), and expenses £13,285 (£12,930), leaving net receipts £675 (£292). Total net revenue was £747, insufficient by £1,703 to meet interest on the 5 per cent. prior lien debentures. The directors have obtained the approval of the stockholders' committee to an extension of the moratorium for one year to February 1, 1942.

Midland Uruguay Railway Co. Ltd.—Gross receipts for the year to June 30, 1941, were £151,609 (£131,659) and expenses £154,265 (£122,538), leaving a net deficit of £2,656, against a profit of £9,121. The Government guarantee on the Fray Bentos branch was again £24,475, and the total revenue was £22,015 (£37,923). On the year there is a debit balance of £25,158, after allowing for debenture interest and redemption, taxation, etc., making the total debit balance forward £123,626.

Assam Railways & Trading Co. Ltd.—The provisional statement of accounts for the year ended March 31, 1941, shows a railway profit of £63,350 (£65,150) and a profit from general trading of £69,850 (£65,884). The balance carried forward from 1939-40 is £54,945. Provision is made for payment of debenture stock interest, for the 8 per cent. dividend on the pre-preference "A" shares, and for dividend on the new 6 per cent. preference shares. To Indian income tax £10,447 is allocated, and the provision for U.K. income tax is £32,500. Pending decision of the company's appeal for a reconsideration of its excess profits standard the directors feel it necessary to make provision for the full liability. It is proposed to carry £59,775 to the balance sheet.

Assam-Bengal Railway Co. Ltd.—Gross earnings for the year to March 31, 1941, were Rs. 2,23,22,182, an increase of Rs. 9,87,541, and the working expenses of Rs. 1,39,96,229 showed a reduction of Rs. 31,55,056, so that the net earnings of Rs. 82,25,953 were Rs. 41,42,597 higher. Surplus profits cannot at present be determined owing to certain questions being still under reference with the Government of India. When these are settled it is not expected that the amount, after deduction of taxes, will be a large one, and it will be dealt with by the liquidator together with the balance of £1,099 standing at credit of the stockholders' revenue account. Stockholders were advised in December, 1940, that it was the intention of the Government of India to determine the contract with the company on December 31, 1941.

Compagnie des Chemins de Fer du Maroc.—The total length of this company's system was 1,079 km. (670 miles) at the end of 1940, or 500 km. (310 miles) more than 10 years ago, according to the company's report for 1940. The number of passengers carried in 1940 amounted to 3,750,000, compared with 2,000,000 in 1939, and 1,500,000 in 1938. Passenger receipts for 1940 were up by 125·7 per cent. compared with 1939. Receipts from goods traffic—apart from the phosphate traffic—showed an increase of 20 per cent. compared with the 1939 results, but receipts originating from the 142 km. (88 mile) of phosphate line between Kourigha and Casablanca, dropped considerably in 1940. Gross profits for 1940 at fr. 143,000,000 the highest level ever attained, were 32½ per cent. higher than in 1939 (fr. 108,000,000), which in turn had shown

a very appreciable increase over the 1938 gross profits (fr. 86,000,000). The gross profits secured in 1940 enabled the company to meet in full all the statutory payments to the Moroccan Government, to pay all other charges, and to declare a dividend of 6 per cent. Furthermore, all Sheriff financial advances were repaid.

Canadian Pacific Railway Company.—A final dividend of 2 per cent. on the preference stock in respect of the year 1941 will be payable on February 2, 1942.

Manila Railway Co. (1906) Ltd.—The dividend for the year to June 30, 1941, on the 5 per cent. non-cumulative preference is at the rate of 1 per cent. per annum (same).

Metropolitan Railway Country Estates Limited.—The board recommends a dividend of 3 per cent. for the year ended October 31, carrying forward £20,926. For the previous year 3 per cent. was paid, £10,000 placed to reserve, and £30,709 carried forward.

Metropolitan Assented Stock.—It has been decided to omit the interim distribution on the £6,540,474 issued stock. In April last holders were informed by Glyn, Mills & Co., the trustees and registrar, that they would receive payments in respect of the interest on their stock not later than May in 1942 and in subsequent years, and that if the trustee decided to make an interim distribution, interest on the assented stock should be received not later than November of each year. A distribution of 1½ per cent. actual was made on April 9, 1941.

East Yorkshire Motor Services Limited.—Total revenue for the year to September 30, 1941, of this subsidiary of the L.N.E.R. and of Tilling & British Automobile Traction Limited, amounted to £422,925. After deducting all expenses and providing for depreciation there remains a balance of £41,223 (£32,731) to which has to be added £14,675 brought forward, making a total of £55,898 (£48,675). There is placed to general reserve £15,000 (£10,000); dividend is 7½ per cent. net (8 per cent. net), and £18,398 is carried forward.

Scottish Motor Traction Co. Ltd.—This company, in which the London Midland & Scottish and the London & North Eastern Railway Companies have each a large shareholding, earned a net profit, after taxation, for the year ended October 31, 1941, of £372,190 (£381,539). The ordinary dividend is maintained at 10 per cent., tax free. The dividend has been the same for many years, although paid less tax up to the end of the 1937 financial year. In 1938 and 1939 scrip bonuses of 25 per cent. each were issued by the capitalisation of reserves and undivided profits. The directors now announce that they intend to return to stockholders 5s. on each £1 unit, as soon as the sanction of the Court is obtained. They are of opinion that the proposal will not involve any diminution of earning power on the part of the company or its subsidiaries.

Lightalloys Limited.—Profit to June 30, 1941, was £31,541 (£35,827). The final dividend is 12½ per cent., making 25 per cent. (same) for the year. A balance is carried forward of £5,717 (£5,175).

Moss Gear Co. Ltd.—Net profit for the year ended August 31, 1941, was £77,359 (£69,873), and the amount brought forward was £41,902, making a total of £119,261. Preference dividend takes £9,000. Interim

dividend on the ordinary was 7½ per cent. (5 per cent.) and the final dividend is 12½ per cent. (same), making 20 per cent. for the year (17½ per cent.), with a cash bonus of 5 per cent. (same), and a sum of £5,000 (same) is written off lands and buildings, leaving £55,261 to be carried forward.

Kendall & Gent (1920) Limited.—Trading profit to September 30 was £62,090 (£82,221), and the net profit £49,263 (£67,767), less depreciation £8,435. The final dividend is 10 per cent. with a bonus of 5 per cent., making 20 per cent. (same) for the year, and £15,111 is carried forward.

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices	
			Dec. 26, 1941	Rise/ Fall
G.W.R.				
Cons. Ord. ...	52	22½	42½	+ 1½
5% Con. Pref. ...	103	58	108½	+ 1
5% Red. Pref. (1950)	105	88	104	—
4% Deb. ...	107	90½	111½	—
4½% Deb. ...	108	96	113	—
4½% Deb. ...	114	96	119½	—
5% Deb. ...	124	106	130	—
2½% Deb. ...	66	57	69	+ 1
5½% Rt. Charge ...	117	97	127½	—
5% Cons. Guar. ...	117	90½	126½	—
L.M.S.R.				
Ord. ...	24	9	17½	+ 1
4% Pref. (1923) ...	60	21½	50½	+ 1
4% Pref. ...	70	35	66½	+ 1
5% Red. Pref. (1955)	94	60	94½	—
4½% Deb. ...	101	81	102	—
4½% Red. Deb. (1952)	109	102	109½	—
4½% Guar. ...	93	65	97½	—
L.N.E.R.				
5% Pref. Ord. ...	80	1½	38	+ 1
Def. Ord. ...	41	1½	1½	—
4% First Pref. ...	60	20	49½	+ 1
4% Second Pref. ...	22	6½	19	—
5% Red. Pref. (1955)	80	34½	76½	—
4% First Guar. ...	86	56	87	—
4% Second Guar. ...	77	37	76½	—
3% Deb. ...	73	54½	76½	—
4% Deb. ...	97	74	101	+ 1
5% Red. Deb. (1947)	107	96	104	—
4½% Sinking Fund	104	98	101½	—
SOUTHERN				
Pref. Ord. ...	79	34	63½	+ 1
Def. Ord. ...	22	7	15½	+ 1
5% Pref. Ord. ...	104	58½	105½	—
5% Red. Pref. (1964)	105	85	104½	—
5% Guar. Pref. ...	116	90	126½	—
5% Red. Guar. Pref. (1957)	114½	94	113½	—
4% Deb. ...	106	84½	108½	—
3½% Deb. ...	122	100	128½	—
4% Red. Deb. (1962-67)	106	96½	107	—
4% Red. Deb. (1970-80)	106	93	107	—
FORTH BRIDGE				
4% Deb. ...	95	87	97½	—
4% Guar. ...	93	81½	97½	—
L.P.T.B.				
4½% "A" ...	116	103	116½	—
5% "A" ...	121	107	127½	—
4½% "T.F.A." ...	105	101	100½	—
5% "B" ...	116	102	114½	—
"C" ...	65	24	40	—
MERSEY				
Ord. ...	26	18½	22½	—
4% Perp. Deb. ...	92	85½	99½	—
3% Perp. Deb. ...	69	63	72½	—
3% Perp. Pref. ...	57	50½	56	—
IRELAND				
BELFAST & C.D. Ord. ...	4	3	4	—
G. NORTHERN				
Ord. ...	44	1½	13	—
G. SOUTHERN				
Ord. ...	12	4	14	—
Pref. ...	15	6	15	—
Guar. ...	36	15	42	- 2
Deb. ...	55	40	59	- 2

Railway Stock Market

Although business in the stock and share markets showed little, if any, improvement, the general undertone in security values has been firm. Sentiment benefited from the trend in British Funds and also from the knowledge that the weight of money awaiting investment will be further increased by the vesting order for India 2½ per cent. and 3 per cent. loans. Moreover, at the time of writing, markets have been influenced more by the good impression created by Mr. Churchill's visit to America than by the war news from the Far East. Home railway securities continued to be favoured, and although movements were moderate in character, they showed small gains on balance. Prior charges were inclined to respond to the probability that a proportion of the funds arising from the requisitioning of India Government loans will be placed in home railway prior charges, bearing in mind that the latter still offer more attractive yields than those obtainable on many other first class investments. Home railway junior stocks were also inclined to move better, hopeful views having remained current as to the dividend announcements due next month. Apart from the assumption that dividends will at least be maintained, the belief appears to be gaining ground that before long clarification of the position in regard

to war damage contributions may be a factor making for general improvement in home railway securities. At the time of writing, however, the chief market feature has been a fairly widespread rally in South American railway stocks. In fact, the improvement extended to most securities connected with South America. So far there does not appear to have been any appreciable increase in demand, but prices have been marked up in the belief that the entry of the U.S.A. into the war will as time proceeds lead to considerable expansion in demand for products of the Latin American countries. It may be recalled that in the autumn South American securities were a rising market, but that subsequently the financial results of the leading railways, and the cautious remarks at annual meetings, had a material influence on sentiment. The recent announcement of the decision of the B.A. Western Railway to resume debenture interest payments has created an excellent impression and has come as a reminder of the rapid improvement in earnings of individual companies that can take place in a relatively short period.

At the time of writing, Great Western ordinary has commenced the week with a rise from 42½ to 42¾; the guaranteed stock has risen a point to 127. Great Western 5 per cent. preference was firm at 108, and the 4 per cent. debentures were 110 xd. L.M.S.R. ordinary, which has been in steady request, has now im-

proved further to 17½, which compares with 16½ a fortnight ago. L.M.S.R. 1923 preference was only fractionally better at 50½, but the senior preference moved up strongly from 66 to 67½, and the 4 per cent. debentures were higher at 103. Among L.N.E.R. issues, the 3 per cent. debentures were fractionally higher at 76½, as were the 4 per cent. debentures at 101½. L.N.E.R. second guaranteed rallied to the slightly higher level of 77, and the first guaranteed at 87½ was maintained on balance. The first preference kept around 49, and the second preference at 19½ was also unchanged on balance. As compared with a fortnight ago, Southern deferred has moved up from 14½ to 15½. Southern preferred remained around 63, but the 4 per cent. debentures gained half-a-point to 109.

Following the announcement of the half-year's payments on B.A. Western debentures, there was widespread improvement in debentures and preference stocks of the Argentine railways. B.A. Western 4 per cent. debentures moved up sharply to 48½. Central Argentine 5 per cent. debentures have risen by 2½ points to 41½, while the 4 per cent. debentures were also at this level, and the 6 per cent. preference moved up to 24½. B.A. Great Southern 4 per cent. debentures rose to 57½. Central Uruguay, Entre Ríos, San Paulo, and Antofagasta issues participated in the general improvement. Canadian Pacific were also better.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1941-42	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffics to date		Shares or Stock	Prices				
			Total this year	Inc. or Dec. compared with 1940		Totals			Highest 1940	Lowest 1940	Dec. 26 1941	Yield % (See N.2)	
			This Year	Last Year									
Antofagasta (Chili) & Bolivia	834	21.12.41	£ 28,950	+ 11,410	51	£ 1,003,630	£ 879,270	+ 124,360	Ord. Stk.	114	3½	N.I.	
Argentine North Eastern	753	13.12.41	ps. 146,600	+ ps. 19,500	24	ps. 4,592,100	ps. 3,910,300	+ ps. 681,800	6 p.c. Deb.	34	1	N.I.	
Bolivar	174	Nov., 1941	—	4,690	—	1,340	48	—	Bonds	62	5	7½	
Brazil	—	—	—	—	—	43,194	—	694	Ord. Stk.	44	6	N.I.	
Buenos Ayres & Pacific	2,801	13.12.41	ps. 1,410,000	+ ps. 78,000	24	ps. 31,205,000	ps. 27,602,000	+ ps. 3,603,000	Ord. Stk.	108	3	9½	
Buenos Ayres Great Southern	5,082	20.12.41	ps. 2,748,000	+ ps. 425,000	25	ps. 55,198,000	ps. 48,632,000	+ ps. 6,566,000	Ord. Stk.	108	2	7½	
Buenos Ayres Western	1,930	20.12.41	ps. 807,000	+ ps. 13,000	25	ps. 20,770,000	ps. 16,967,000	+ ps. 3,863,000	Ord. Stk.	88	2	N.I.	
Central Argentine	3,700	13.12.41	ps. 1,465,600	+ ps. 68,700	24	ps. 42,582,550	ps. 33,319,500	+ ps. 9,263,050	Do.	84	2	7½	
Cent. Uruguay of M. Video	972	13.12.41	20,823	+ —	231	24	541,544	484,449	+ 57,095	Ord. Stk.	34	7	N.I.
Costa Rica	188	Oct., 1941	22,162	+ 6,647	18	91,158	72,735	+ 18,423	Stk.	23½	14	16½	
Dorada	70	Nov., 1941	13,060	+ 1,260	48	136,030	134,200	+ 1,830	I Mt. Db.	99	97½	90½	
Entre Ríos	808	13.12.41	ps. 206,100	+ ps. 25,100	24	ps. 6,657,200	ps. 5,401,800	+ ps. 1,255,400	Ord. Stk.	4	6	N.I.	
Great Western of Brazil	1,016	20.12.41	14,900	+ 600	51	524,900	545,200	+ 20,300	Ord. Sh.	4/-	1/-	7½	
International of Cl. Amer.	794	Oct., 1941	\$409,481	+ \$68,280	43	\$4,666,581	\$4,746,621	+ \$80,040	Is. Pref.	9d.	9d.	½	
Intercostean of Mexico	—	—	—	—	—	—	—	—	Pr. Li. Stk.	41	36	42½	
La Guaira & Caracas	224	Nov., 1941	6,925	+ 1,520	22	72,370	72,500	+ 130	Do.	6	4	N.I.	
Leopoldina	1,918	13.12.41	27,155	+ 1,680	50	1,321,401	1,160,232	+ 161,169	Ord. Stk.	2½	1	3½	
Mexican	483	14.12.41	ps. 257,100	+ ps. 6,600	24	ps. 7,011,100	ps. 6,388,400	+ ps. 622,700	Do.	2/11½	—	N.I.	
Midland of Uruguay	319	Oct., 1941	13,089	+ 645	17	54,363	46,005	+ 8,358	Do.	—	—	N.I.	
Nitrate	386	15.12.41	7,484	+ 644	50	140,387	167,048	+ 26,661	Ord. Sh.	28	1	3½	
Paraguay Central	274	20.12.41	\$3,226,000	+ \$11,000	25	\$88,495,000	\$84,693,000	+ \$3,802,000	Pr. Li. Stk.	41	36	42½	
Peruvian Corporation	1,059	Nov., 1941	63,497	+ 353	22	355,843	328,469	+ 27,374	Pref.	4	1	N.I.	
Salvador	100	Oct., 1941	c35,000	+ c4,000	18	c191,172	c165,683	+ c25,489	Do.	—	—	N.I.	
San Paulo	1534	14.12.41	34,312	+ 8,026	50	1,835,487	1,823,078	+ 12,409	Ord. Stk.	50	23	43½	
Talca	160	Nov., 1941	3,340	+ 1,275	22	25,330	13,935	+ 11,395	Ord. Sh.	15/1½	1½	N.I.	
United of Havana	1,346	20.12.41	23,270	+ 8,542	25	480,568	370,061	+ 110,507	Ord. Stk.	8	2	N.I.	
Uruguay Northern	73	Oct., 1941	1,505	+ 167	17	5,434	4,275	+ 1,159	Do.	—	—	N.I.	
Canadian National	23,560	14.12.41	1,264,460	+ 194,515	50	57,760,642	46,845,393	+ 10,915,248	Perp. Dbs.	86	68	93½	
Canadian Northern	—	—	—	—	—	—	—	—	4 p.c. Gr.	105½	95½	99½	
Grand Trunk	—	—	—	—	—	—	—	—	Ord. Stk.	9½	4½	10½	
Canadian Pacific	17,137	21.12.41	953,200	+ 160,800	51	42,887,600	33,197,000	+ 9,690,600	Do.	—	—	N.I.	
Assam Bengal	1,329	—	—	—	—	—	—	—	Ord. Stk.	99½	71	100	
Baris Light	202	20.10.41	3,337	+ 165	28	94,500	82,020	+ 12,480	Do.	—	—	3	
Bengal & North Western	2,099	Nov., 1941	283,425	+ 15,228	10	528,525	513,931	+ 14,594	Ord. Stk.	283	234	343	
Bengal-Nagpur	3,269	10.10.41	234,750	+ 14,924	27	4,993,938	4,533,077	+ 460,861	Do.	96	83½	99½	
Bombay, Baroda & Cl. India	2,986	10.12.41	356,025	+ 70,800	36	7,402,800	6,797,625	+ 605,175	Do.	108	99	97½	
Madras & Southern Mahratta	2,939	10.10.41	172,800	+ 12,778	27	3,844,255	3,176,613	+ 667,642	Do.	104	97½	101½	
Rohilkund & Kumaon	546	Nov., 1941	49,125	+ 296	10	95,874	—	—	Do.	284	238	345	
South Indian	2,421	10.10.41	146,673	+ 15,712	27	2,814,362	2,435,294	+ 379,068	Do.	93½	83	97½	
Beira	204	Oct., 1941	82,103	+ 4	—	82,103	—	—	Prf. Sh.	7/10½	—	2½	
Egyptian Delta	610	10.10.41	11,017	+ 2,532	27	144,860	98,304	+ 46,556	B. Deb.	53	44½	51½	
Manila	—	—	—	—	—	—	—	—	Inc. Deb.	88	80	89½	
Midland of W. Australia	277	June, 1941	15,932	+ 5,006	52	183,856	156,230	+ 27,626	Do.	—	—	N.I.	
Nigerian	1,900	27.9.41	43,874	+ 12,122	26	1,289,214	923,862	+ 365,352	Do.	—	—	N.I.	
Rhodesia	2,442	Oct., 1941	482,053	+ 4	—	482,053	—	—	Do.	—	—	N.I.	
South Africa	13,291	8.11.41	768,139	+ 56,122	32	24,128,060	21,664,555	+ 2,463,505	Do.	—	—	N.I.	
Victoria	4,774	July, 1941	955,039	+ 86,611	4	955,039	868,428	+ 86,611	Do.	—	—	N.I.	

Note. Yields are based on the approximate current prices and are within a fraction of 1/2. Argentine traffics are given in pesos
† Receipts are calculated @ Is. 6d. to the rupee \$ ex dividend